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COVER PHOTOGRAPH: Water cascading in the upper Sacramento River, about mid December 1977, provided the first sign of relief from two consecutive record dry water years of 1976 and 1977.

Department of
Water Resources

Bulletin 202-78

Water Conditions and Flood Events in California

Water Year 1977-78

December 1979

Huey D. Johnson
Secretary for Resources

The Resources
Agency

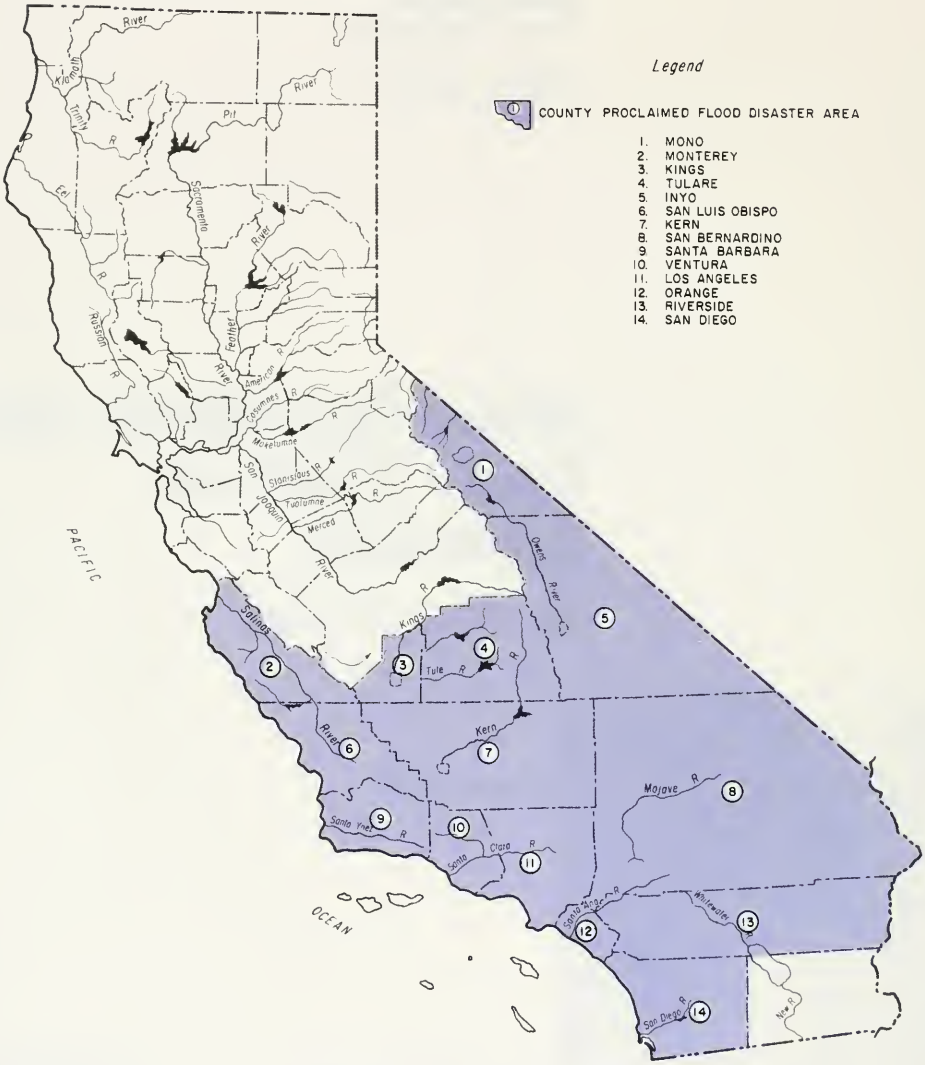
Edmund G. Brown Jr.
Governor

State of
California

Ronald B. Robie
Director

Department of
Water Resources

FIGURE 1. COUNTIES PROCLAIMED DISASTER AREAS DURING WATER YEAR 1977-78



FOREWORD

Water year 1977-78 (October 1, 1977 through September 30, 1978) marked the return of normal water supplies and storage in California. Ten weeks after the water year began, relatively heavy December storms brought long-awaited relief from the record drought conditions of the two previous years. The heavy precipitation began in mid December 1977, and continued almost without interruption until January 20, 1978. On February 1, 1978, the Department forecast above-average water year runoff if median conditions of precipitation prevailed for the remainder of the season. By the end of the season on May 1, 1978, the water year forecast of statewide snowmelt runoff was 170 percent of average.

Bulletin 202-78 combines general information on statewide water conditions and significant flooding events of the water year 1977-78. The Bulletin covers weather patterns of significant storm periods; and information on precipitation, snowpack, unimpaired runoff, and reservoir storage. The Bulletin also includes hydrographs of stream stages and reservoir operations, weir overflow graphs, tabulations of peak streamflow and stages, and other data on flood events during the year.

As part of the Department's continuing effort to reduce costs, Bulletin 202 will not be published again. The data contained in this Bulletin will be compiled, however, and available by request.

This report was prepared from information provided by the Department of Water Resources, National Weather Service, U. S. Geological Survey, U. S. Army Corps of Engineers, U. S. Water and Power Resources Service, and many other agencies, public and private, to whom we wish to express our thanks.

Ronald B. Robie

Ronald B. Robie, Director
Department of Water Resources
The Resources Agency
State of California

CONTENTS

APPENDIXES

CONTENTS (Continued)

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CONVERSION FACTORS

Metric to Customary System of Measurement

Quantity	Metric Unit	Multiply by	To get customary equivalent
Length	millimetres (mm)	0.03937	inches (in)
	centimetres (cm) for snow depth	0.3937	inches (in)
	metres (m)	3.2808	feet (ft)
	kilometres (km)	0.62139	miles (m)
Area	square millimetres (mm^2)	0.00155	square inches (in^2)
	square metres (m^2)	10.764	square feet (ft^2)
	hectares (ha)	2.4710	acres (ac)
	square kilometres (km^2)	0.3861	square miles (mi^2)
Volume	litres (l)	0.26417	gallons (gal)
	megalitres	0.26417	million gallons (10^6 gal)
	cubic metres (m^3)	35.315	cubic feet (ft^3)
	cubic metres (m^3)	1.308	cubic yards (yd^3)
	cubic metres (m^3)	0.0008107	acre-feet (ac-ft)
	cubic dekametres (dam^3)	0.8107	acre-feet (ac-ft)
	cubic hectometres (hm^3)	0.8107	thousands of acre-feet
	cubic kilometres (km^3)	0.8107	millions of acre-feet
Flow	cubic metres per second (m^3/s)	35.315	cubic feet per second (ft^3/s)
	litres per minute (l/min)	0.26417	gallons per minute (gal/min)
	litres per day (l/day)	0.26417	gallons per day)(gal/day)
	megalitres per day (Ml/day)	0.26417	million gallons per day (mgd)
	cubic metres per day (m^3/day)	0.0008107	acre-feet per day
Mass	kilograms (kg)	2.2046	pounds (lb)
	tonne (t)	1.1023	tons (short, 2,000 lb)
Velocity	metres per second (m/s)	3.2808	feet per second (ft/s)
Power	kilowatts (kW)	1.3405	horsepower (hp)
Pressure	kilopascals (kPa)	0.145054	pounds per square inch (psi)
	kilopascals (kPa)	0.33456	feet head of water
Specific capacity	litres per minute per metre drawdown	0.08052	gallons per minute per foot drawdown
Concentration	milligrams per litre (mg/l)	1.0	parts per million
Electrical conductivity	microsiemens per centimetre (μS/cm)	1.0	micromho per centimetre
Temperature	degrees Celsius (°C)	(1.8 × °C) + 32	degree Fahrenheit (°F)

FIGURE 2. HYDROLOGIC BASINS OF CALIFORNIA

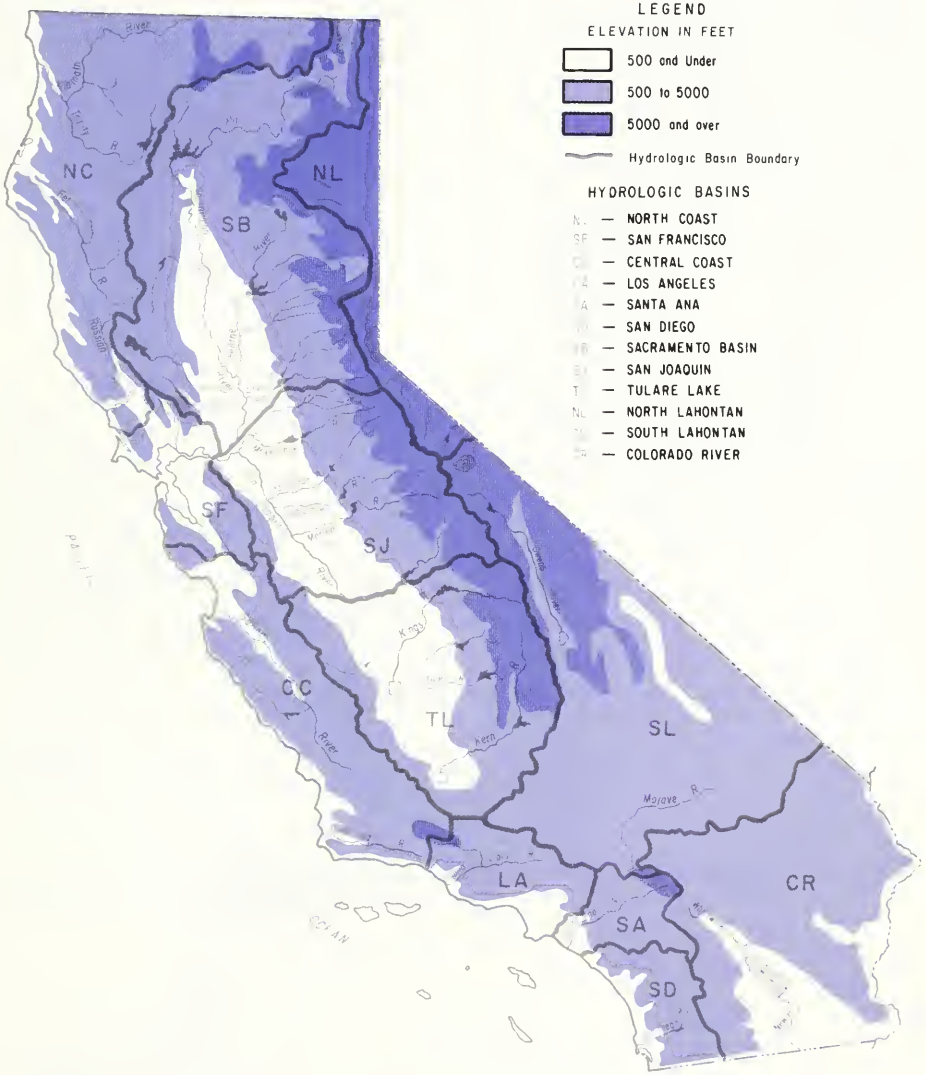


FIGURE 3. WATER YEAR PRECIPITATION IN INCHES (MILLIMETERS)
OCTOBER 1, 1977 - SEPTEMBER 30, 1978

CHAPTER I - WEATHER

The weather patterns of the season 1977-78 marked a decisive change from the drought patterns of the two previous seasons. Once again weather fronts with thick cloud layers and ample moisture supply moved over California and dumped generous quantities of rain over the State. One professional weather watcher has called the winter 1977-78 for the West "the warm, drought-breaking winter of '78." The weather maps no longer showed a high-pressure ridge entrenched over the West that could divert storms away from California. Instead, storm systems moved across the Pacific on a wide path at mid latitudes to strike California broadside. Furthermore, numerous systems formed in the eastern Pacific at low latitudes and tracked northeastward toward California, particularly Southern California. All five months from December 1977 through April 1978 brought above-normal precipitation to the State. The data in Table 1 illustrate how the fall-winter-spring seasons brought abundant precipitation at representative stations throughout the State.

In our discussion of the weather events of 1977-78, we will refer to two semipermanent atmospheric pressure systems, the so-called Aleutian low and the Pacific high.* The former is the low-(atmospheric) pressure center located in the north Pacific near the Aleutian Island chain (about Latitude 50°N), and the latter is the high-pressure center located in the eastern Pacific (Latitude 30° to 35°N). These pressure centers are important components of the air-circulation pattern over the Pacific sector of the northern hemisphere. In a broad sense, the Pacific high is strong (higher central pressure) and the Aleutian low relatively weak in the summer months, whereas in the winter months the opposite is true: the Aleutian low is strong and dominant (lower pressure) and the Pacific high is weak (pressure not as high as in summer). The pressure values on the daily weather maps averaged over a period of time (such as a month or season) define the strenght and location of these two pressure centers, and the weather phenomena (rain, clouds, sky condition, wind, etc.), in turn, are related to the defined patterns.

For convenience, the following discussion of the weather in 1977-78 has been broken down into monthly periods:

---

* The meteorologist customarily draws lines of equal atmospheric pressure on the weather maps to delineate the low-and-high-pressure systems (or centers).

November. In November the westerly winds over the eastern Pacific began to increase, and the Aleutian low deepened below its normal November value. The Pacific Northwest and the northwestern corner of California began to experience weather fronts, and the resultant precipitation for the month was above normal for those areas mentioned. The storm tracks (i.e., the trajectories of the low-pressure centers) during November set up a favorable trend for storm events in the coming months to affect California.

December. December brought the further strengthening of the Pacific westerlies. Although the Aleutian low did continue below normal, the additional development took place whereby the Pacific high-pressure cell was weakened and was displaced to the southeast of its normal location. As a result, pressures west of California were at least 6-8 millibars* below normal; this permitted more frequent southerly winds to bring clouds and moisture over the State. Storm events in December were numerous, especially in the latter half of the month, and affected the entire State.

One noteworthy weather event (but not involving water) occurred on December 20. A very strong high-pressure cell developed suddenly during the night of December 19-20 over the Great Basin. This activated a very strong downslope wind through the Tehachapi canyons into the southern San Joaquin Valley. The wind gusts are estimated to have reached 160 kilometres per hour (100 m.p.h.). The strong, destructive winds mainly affected Kern County, and extensive damage to buildings and agriculture resulted from the blowing sand and dust. The hardest hit area was the Arvin-Lamont-Edison-Bakersfield sector. Large volumes of dust were carried by upper level southerly winds as far north as the Oregon-California border. A month later, snow surveyors on Mt. Shasta reported finding a layer of dust embedded in the snowpack that had been deposited in the December 20 storm.

Northern and Central California benefited from the December storms. Reservoirs began to accumulate runoff. For Southern California the storms came after December 16. The one important storm that helped boost the monthly totals significantly in Southern California occurred in the period December 23-29. This was a low-latitude storm which had developed in the eastern Pacific.

Overall, the monthly accumulations over the State were well above normal, with Southern California and the southern Sierra Nevada receiving amounts in excess of 200 percent of normal.

---

* 1 millibar = 0.03 inches mercury = 0.75 millimetres mercury = 0.10 kilopascal (SI unit of pressure).

January. In January 1978, the Aleutian low-pressure center was 10-12 millibars below normal and was located in its normal location (latitude 50° N, longitude 175° E). The eastern Pacific high-pressure center was weakened and was displaced southward to 25° north latitude. An active storm track in the Pacific brought frequent frontal passages over California with accompanying precipitation. Precipitation totals over the State were well above normal -- many areas received 200 to 300 percent of normal, including the mountainous areas from which water supplies are primarily obtained. The plots of reservoir storage at major reservoirs, such as Shasta, Oroville, and Folsom, showed their most dramatic (sharp) rise in response to the repeated storm events. Snow levels in the January storms were in the intermediate elevation range -- 1 200 to 1 500 metres (4,000 to 5,000 feet), thus initiating the buildup of a deep snowpack in the mountains. For example, Lodgepole, in the Kaweah River drainage, started the month with 46 centimetres (18 inches) on the ground and had a depth of 206 centimetres (81 inches) by January 19.

February. February 1978 brought the continuation of a wet weather pattern for California. Both the Aleutian low-pressure and Pacific high-pressure centers were displaced southeastward from their normal locations. Frequent and intense migratory storms in the Pacific moved eastward along the southern periphery of the Aleutian low between 35° north latitude. Frontal systems moved through California and brought the accumulated monthly rainfall amounts to 1-1/2 to 3 times the normal over the State. Southern California was struck by a series of storms (extending into early March) that formed along the 30° latitude circle (about 1 100 kilometres [600 nautical miles] north of Hawaii) and tracked east-ward on a southerly path. The first storm affecting Southern California developed over the ocean on February 8 and continued into the 9th and 10th. Torrential rainfall in the Big Tujunga Canyon of the San Gabriel Mountains created a flood wave that brought destruction and loss of life to the community of Hidden Springs. Many stations in the mountains above the 600-metre (1 968-foot) level had two-day totals exceeding 250 millimetres (10 inches). One of the highest two-day totals occurred at Crystal Lake in Los Angeles County where 432 millimetres (17 inches) was reported.

Snowpack accumulation in the mountains continued during the February storms. By the end of the month, the snow water storage had already exceeded the average total seasonal accumulation in all river basins south of the Pit River Basin. The water supply outlook for the summer of 1978 appeared good.

March. In March 1978, the Aleutian low center was displaced southwest of its normal position, and pressures around the center were 8 to 10 millibars below normal. The Pacific high was displaced about 10° longitude west of its normal position. Frequent storm systems moved across the Pacific in the latitude band between 35° north and 45° north. The sharp fronts associated with the migratory low-pressure centers swept into California and released above-normal precipitation over the State (with the exception of the extreme North Coast). The rainy period covered generally the first part of the month through March 12, and March 21-23 and 30-31.

Southern California received a series of storms that began February 28 and continued into the first two days of March. These storms, like the one of February 9-10, had a southerly origin in the Pacific and tracked into Southern California. The two-day intensity of this storm almost equaled the one of February 9-10. Two stations reporting two-day amounts in the 305-330 millimetre range (12 to 13 inches) were Lytle Creek Ranger Station in San Bernardino County and Mt. Wilson 2 in Los Angeles County.

Another storm that followed closely had its heaviest concentration in the two-day period March 4-5 in the Southern California area. Lytle Creek Ranger Station reported a two-day total of 273 millimetres (10.76 inches). Property damage resulted from the torrential downpours and mudslides, and portions of the coast experienced heavy surf conditions, especially at Malibu.

TABLE 1. PRECIPITATION AMOUNTS AT SELECTED STATIONS DURING WATER YEAR 1977-78

HYDROLOGIC BASIN / Station	ELEVATION Metres	ELEVATION Feet	PRECIPITATION FOR SELECTED PERIODS: Oct. - Nov. 1977 Millimetres	Oct. - Nov. 1977 Inches	Oct. - Nov. 1977 Percent Normal	Winter Quarter Millimetres	Winter Quarter Inches	Winter Quarter Percent Normal	Spring Quarter Millimetres	Spring Quarter Inches	Spring Quarter Percent Normal	Water Year Millimetres	Water Year Inches	Water Year Percent Normal
NORTH COAST														
Gasquet RS	117	384	723	28.46	129	1 462	57.57	126	523	20.59	92	2 962	116.63	124
Eureka	18	60	185	7.30	84	436	17.18	92	198	7.80	77	913	35.96	92
Fort Bragg	24	80	158	6.21	79	665	26.20	129	318	12.52	133	1 218	47.95	123
SACRAMENTO														
Shasta Dam	328	1,075	169	6.66	60	1 425	56.09	180	671	26.42	181	2 400	94.47	159
Blue Canyon	1 610	5,280	193	7.61	64	1 257	44.50	151	703	27.68	169	2 313	91.05	144
Sacramento CI	26	84	58	2.27	75	407	16.03	157	165	6.50	148	639	25.17	140
SAN JOAQUIN														
Fresno AP	100	328	12	.47	29	269	10.59	182	180	7.10	220	488	19.21	178
TULARE LAKE														
Grant Grove	2 013	6,600	88	3.45	46	1 048	41.26	185	519	20.45	153	1 804	71.01	162
Bakersfield	151	495	2	.09	10	195	7.69	255	74	2.90	149	290	11.42	188
SAN FRANCISCO BAY														
Napa State Hospital	18	60	213	8.39	295	526	20.72	151	239	9.41	163	999	39.35	162
Kentfield	39	128	314	12.36	146	889	35.01	124	340	13.38	132	1 590	62.58	131
San Francisco CI	40	130	54	2.13	60	331	13.04	111	229	9.02	191	620	24.39	120
CENTRAL COAST														
Monterey	117	385	17	.68	22	442	17.41	175	272	10.69	229	741	29.19	159
San Luis Obispo	96	315	8	.33	11	888	34.96	262	316	12.46	231	1 245	49.00	222
Santa Barbara	2	5	0	0	0	595	23.43	218	344	13.53	313	968	38.12	215
SOUTH COASTAL AREA*														
Mt. Wilson 2	1 741	5,709	18	.70	15	1 291	50.81	266	652	25.65	323	2 029	79.88	245
Los Angeles CC	78	257	2	.08	4	541	21.31	241	249	9.79	290	802	31.57	217
San Diego AP	4	13	14	.55	34	261	10.26	181	147	5.77	239	439	17.30	174
NORTH LAHONTAN														
Susanville AP	1 264	4,146	28	1.10	40	296	11.65	152	104	4.10	132	452	17.81	120
SOUTH LAHONTAN														
Bishop AP	1 253	4,108	1	.05	6	217	8.54	271	47	1.86	172	280	11.01	194
Barstow	659	2,160	0.8	.03	4	144	5.67	346	69	2.70	342	226	8.89	223
COLORADO RIVER														
Palm Springs	130	425	0	0	0	178	7.02	224	52	2.05	233	241	9.48	171
Imperial	-20	-64	7	.29	71	65	2.54	227	12	.48	155	96	3.78	147

* South Coastal Area includes the Los Angeles, Santa Ana, and San Diego Hydrologic Basins

Metric Equivalents:
1 inch = 25.4 millimetres (mm)
1 foot = 0.305 metre (m)

Winter Quarter = December, January, February
Spring Quarter = March, April, May

FIGURE 4. WATER YEAR PRECIPITATION IN PERCENT OF NORMAL
OCTOBER 1, 1977 - SEPTEMBER 30, 1978

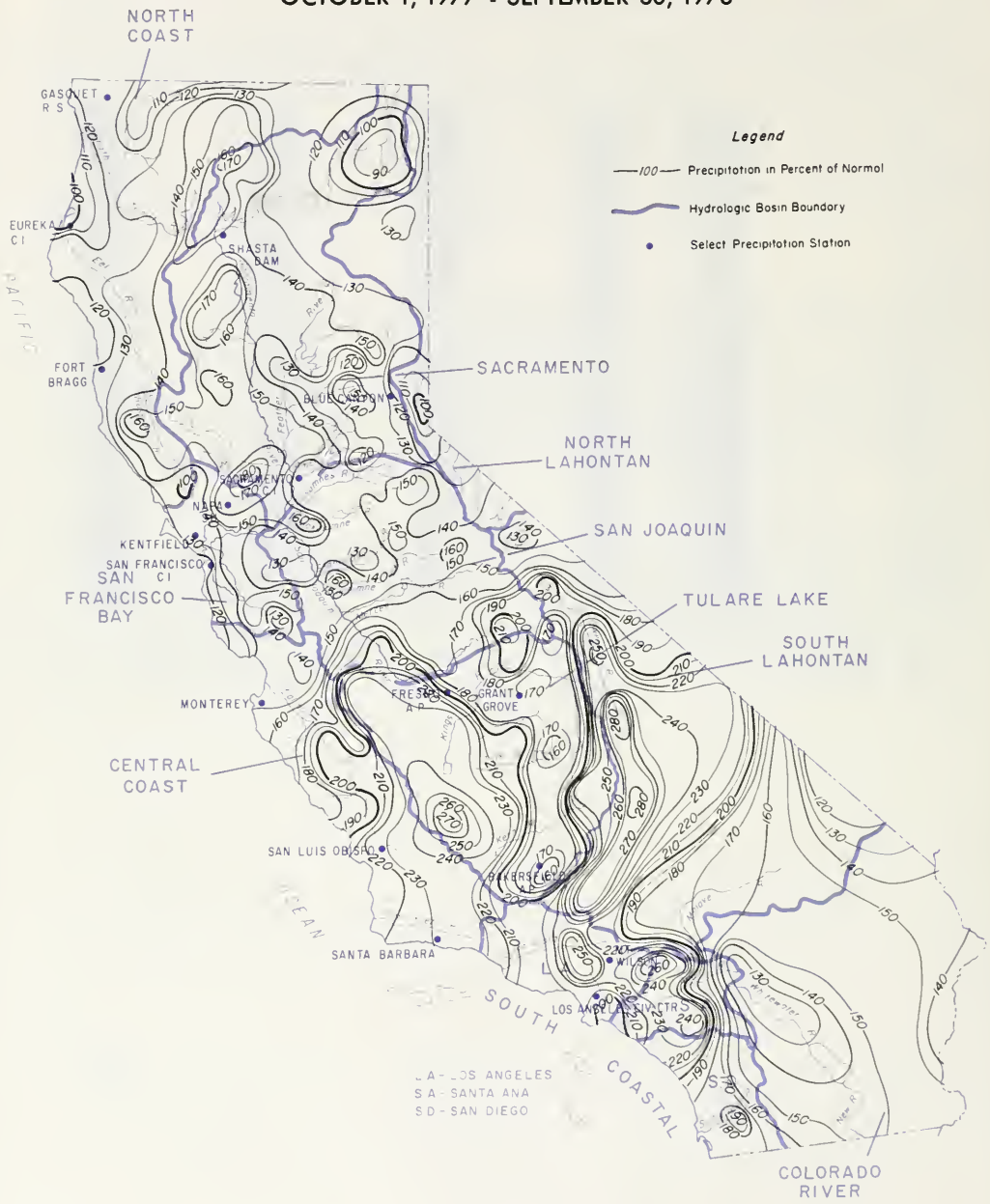


FIGURE 5. PRECIPITATION ACCUMULATION AT SELECTED STATIONS OCTOBER 1977 - APRIL 1978

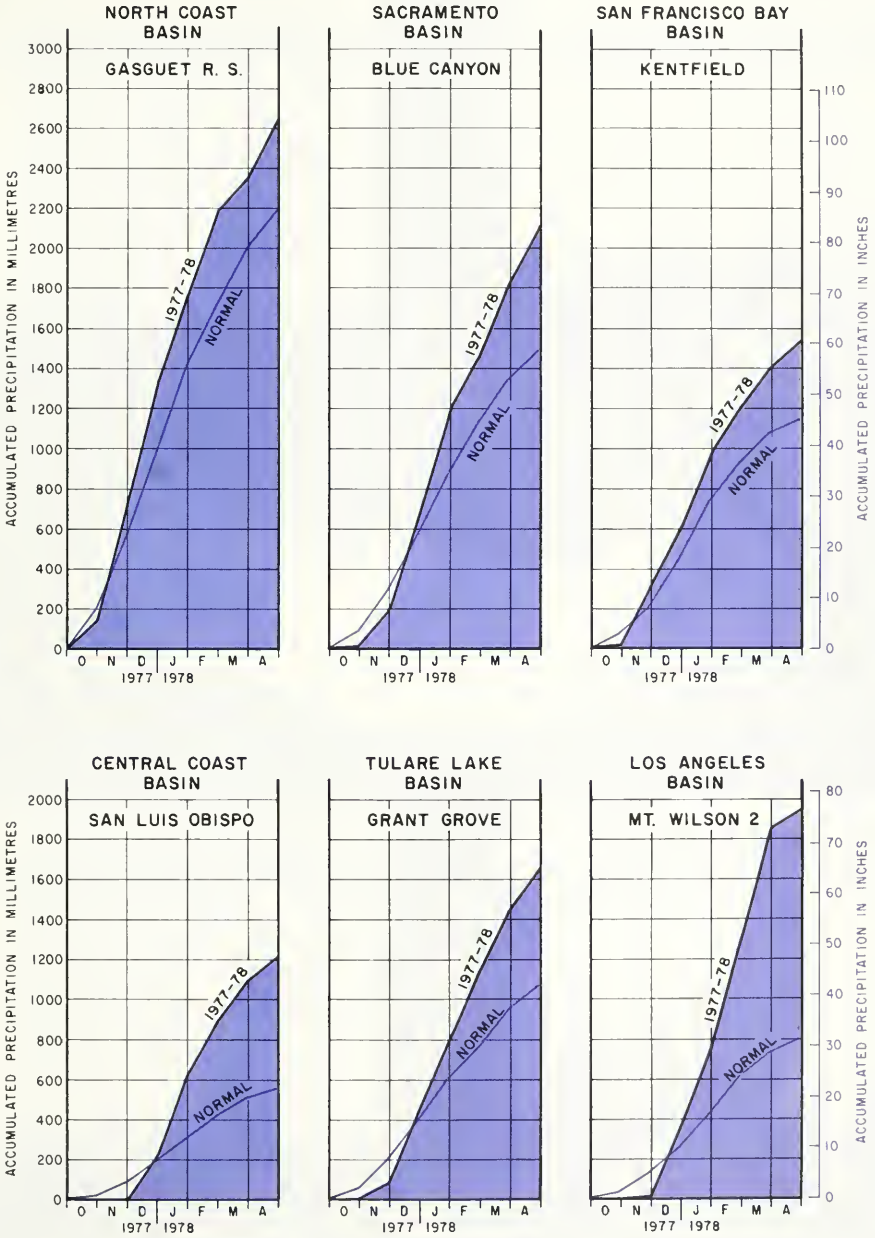
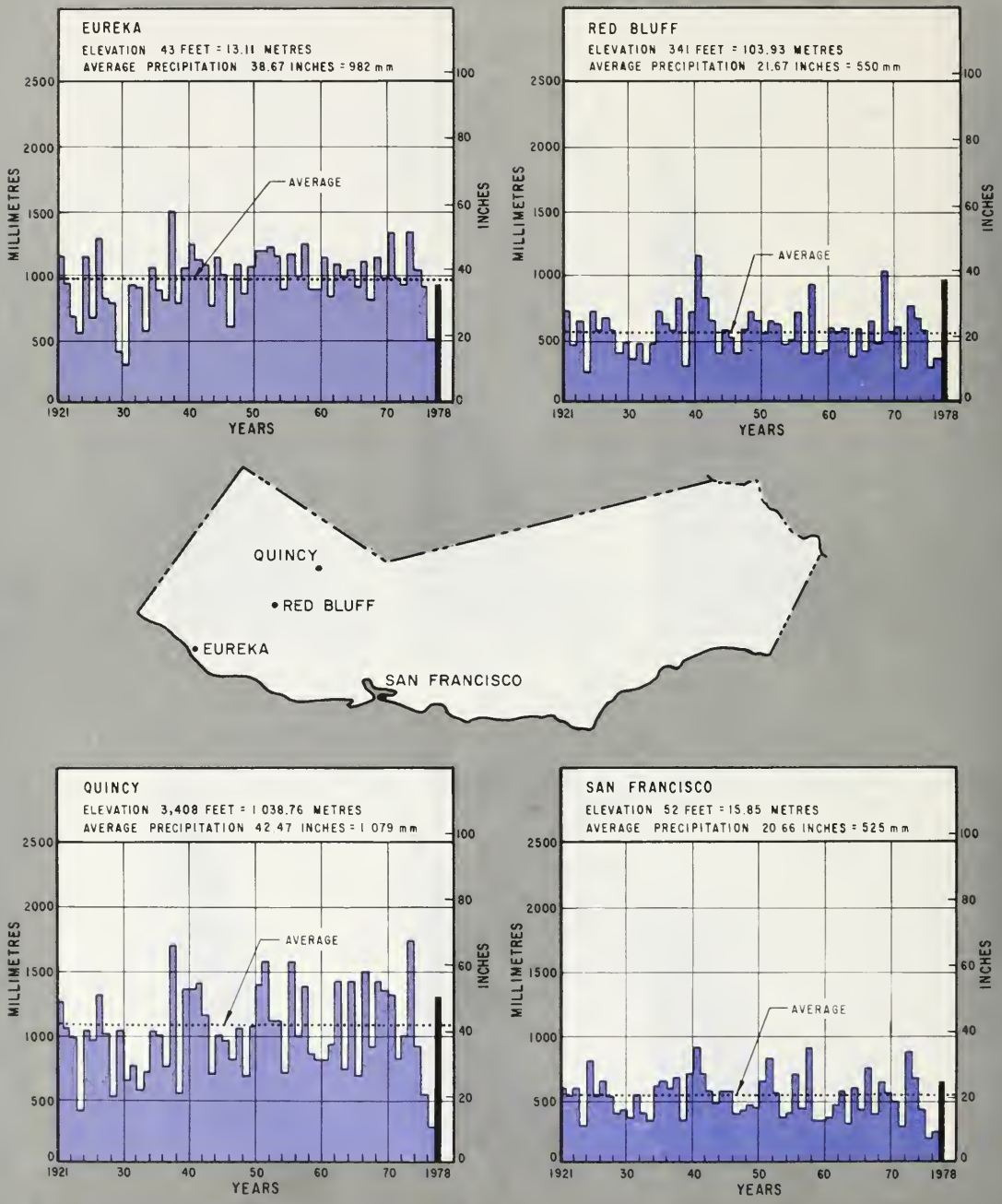
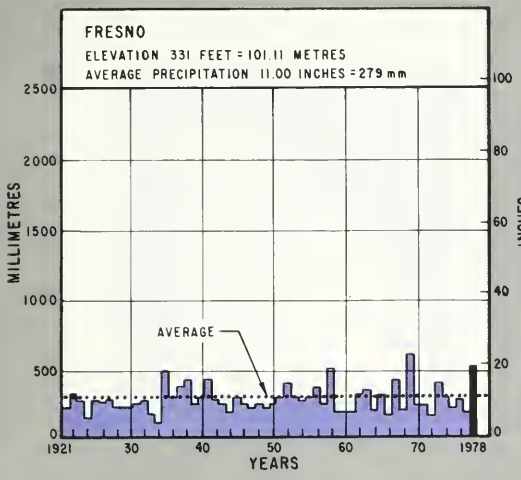
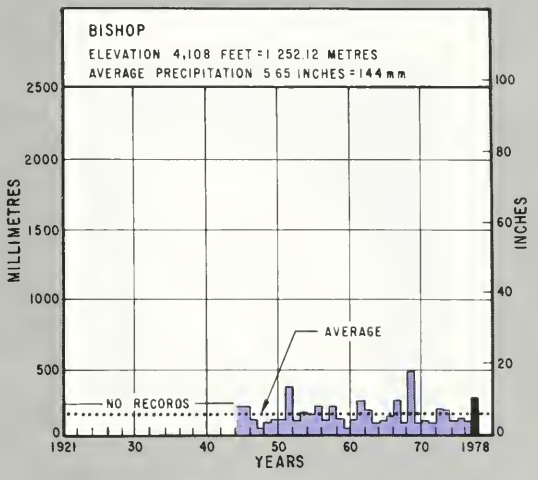


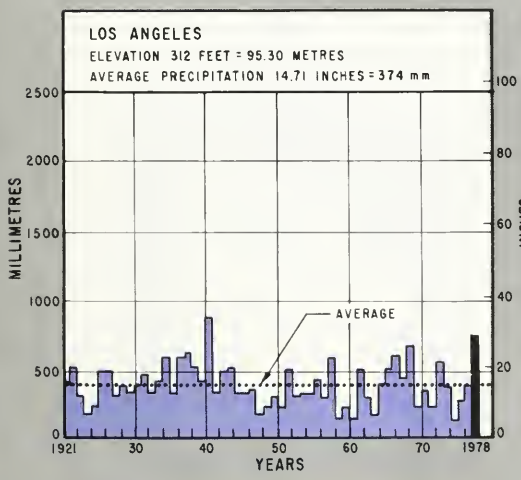
FIGURE 6. ANNUAL VARIATION IN



PRECIPITATION AT SELECTED CITIES







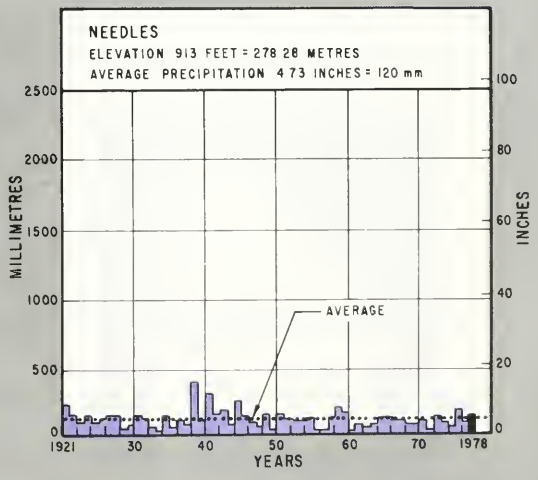
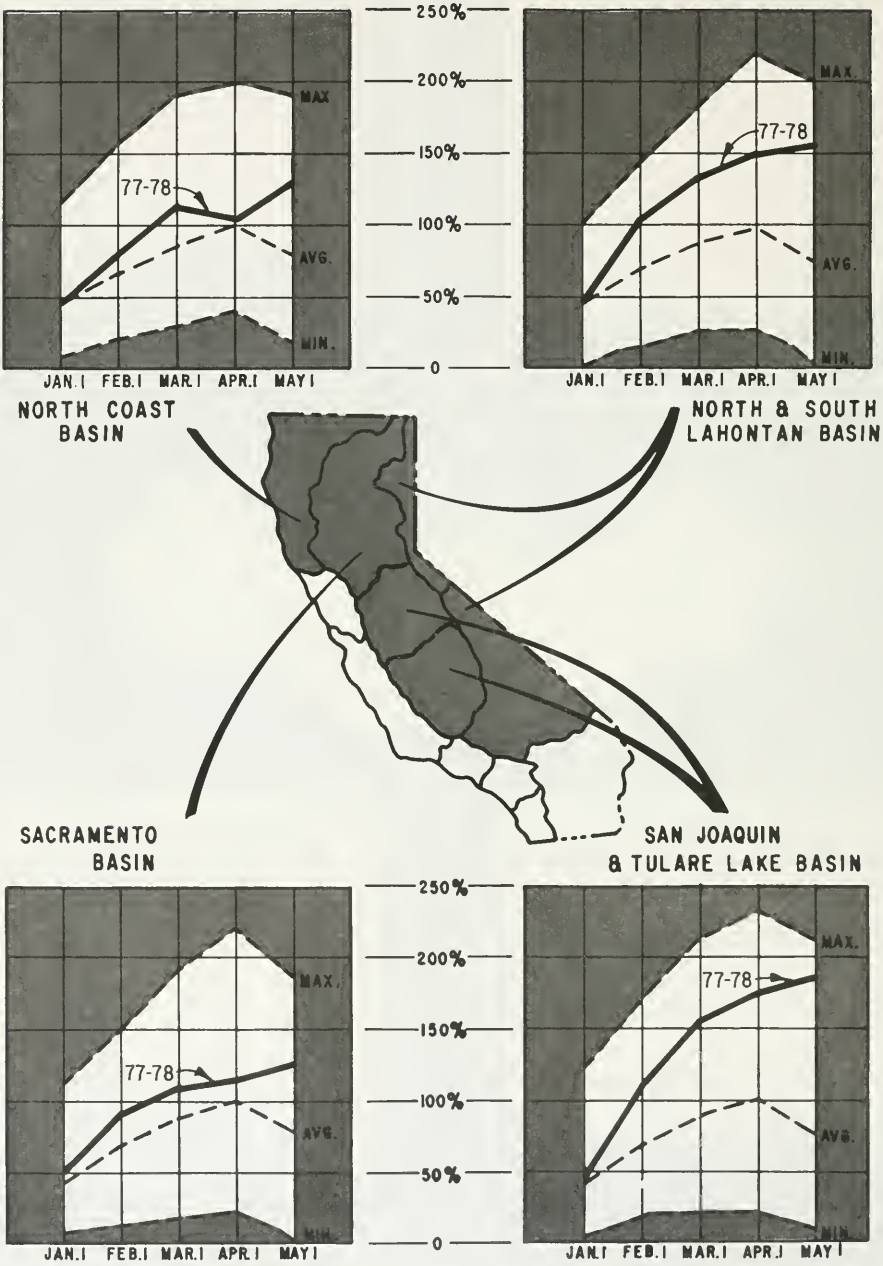


FIGURE 7. WATER CONTENT OF SNOWPACK ACCUMULATION
IN PERCENT OF APRIL 1 AVERAGE



Intermittent heavy precipitation, which began in mid-December 1977 and continued through January 20, 1978, provided by February 1, 1978 a snowpack water content well above normal in all watersheds except the Pit River Basin. February 1 snow surveys indicated that snowpack water content of the Pit River Basin was 90 percent of the February 1 average; and the southern Sierra snowpack exceeded 150 percent of average. The February 1, 1978 Department forecast for the water year runoff throughout the Sierra varied from 115 to 140 percent of average, based on average precipitation and snowpack accumulation during the remainder of the season.

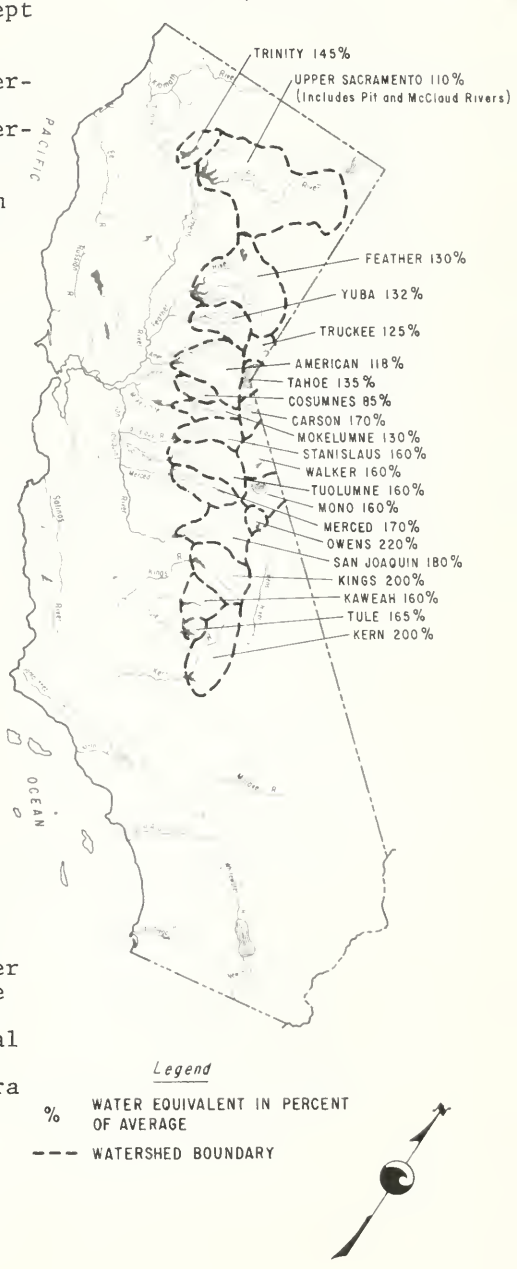
The March 1, 1978 snow surveys indicated that all river basins except the Pit River Basin had exceeded the average total seasonal accumulation, which normally occurs about April 1.

Snowpack measurements for March indicated that melting occurred at lower and mid elevations during March, but that by the month's end, all watersheds had a net increase in snow-stored water. NASA satellite imagery for the southern Sierra watersheds showed an increase of 45 percent in snowcovered area for water year 1978 and over the record dry conditions of water year 1977.

The normal beginning of the snowmelt season in the Sierra Nevada is April 1. Low temperatures above 2 000 metres (6,500 feet) caused water accumulation to exceed snowmelt above this level during April in most areas. On May 1, 1978, a near-record pack existed, especially in the southern Sierra. Lower average temperatures until mid July were reflected by end-of-July satellite data on snowcover that indicated a substantial snowpack was left in protected high elevation portions of the southern Sierra watersheds.

Seasonal snowpack accumulation curves are shown in Figure 7, and April 1 snowpack, in percent of average for individual river basins, is depicted in Figure 8.

FIGURE 8. SNOWPACK IN PERCENT OF AVERAGE APRIL 1, 1978



CHAPTER II - WATER SUPPLY

UNIMPAIRED RUNOFF

Unimpaired runoff during the 1977-78 water year for California was 158 percent of normal, compared to a record low of 24 percent of normal for 1976-1977. Relief from two consecutive years of record low runoff came in mid-December of 1977. Intermittent heavy rains during January 1978 resulted in runoff that was 200 percent of normal in the Central Valley, and which averaged almost 220 percent of normal statewide. Statewide, runoff continued to be normal and above normal for the remainder of the water year 1977-78.

Runoff from interior basins ranged from a high of 244 percent of average for the Kern River to 131 percent of average for the Feather and Yuba Rivers. San Francisco Bay hydrologic basin and Central Coast basin values were 167 and 295 percent of normal, respectively, compared to 1 and 5 percent of normal for the previous water year. Water year percentages for major hydrologic basins are listed in the table below.

Detailed data for individual streams are shown in Figure 9 and Table 2, and annual variations on unimpaired runoff since 1921 for eight streams are shown in Figure 10.

UNIMPAIRED RUNOFF BY AREA

HYDROLOGIC BASIN	WATER YEAR UNIMPAIRED FLOW IN PERCENT OF NORMAL	
	1977	1978
North Coast	14	146
San Francisco Bay	1	167
Central Coast	5	295
South Coastal Area (1)	26	364
Central Valley Area		
Sacramento	20	142
San Joaquin and Tulare Lake	20	184
Lahontan Area (2)	30	128
ENTIRE STATE	24	158

(1) Includes Los Angeles, Santa Ana, and San Diego Basins.
(2) Includes North and South Lahontan Basins.

FIGURE 9. UNIMPAIRED RUNOFF, 1977-78

WATER YEAR OCTOBER 1 – SEPTEMBER 30

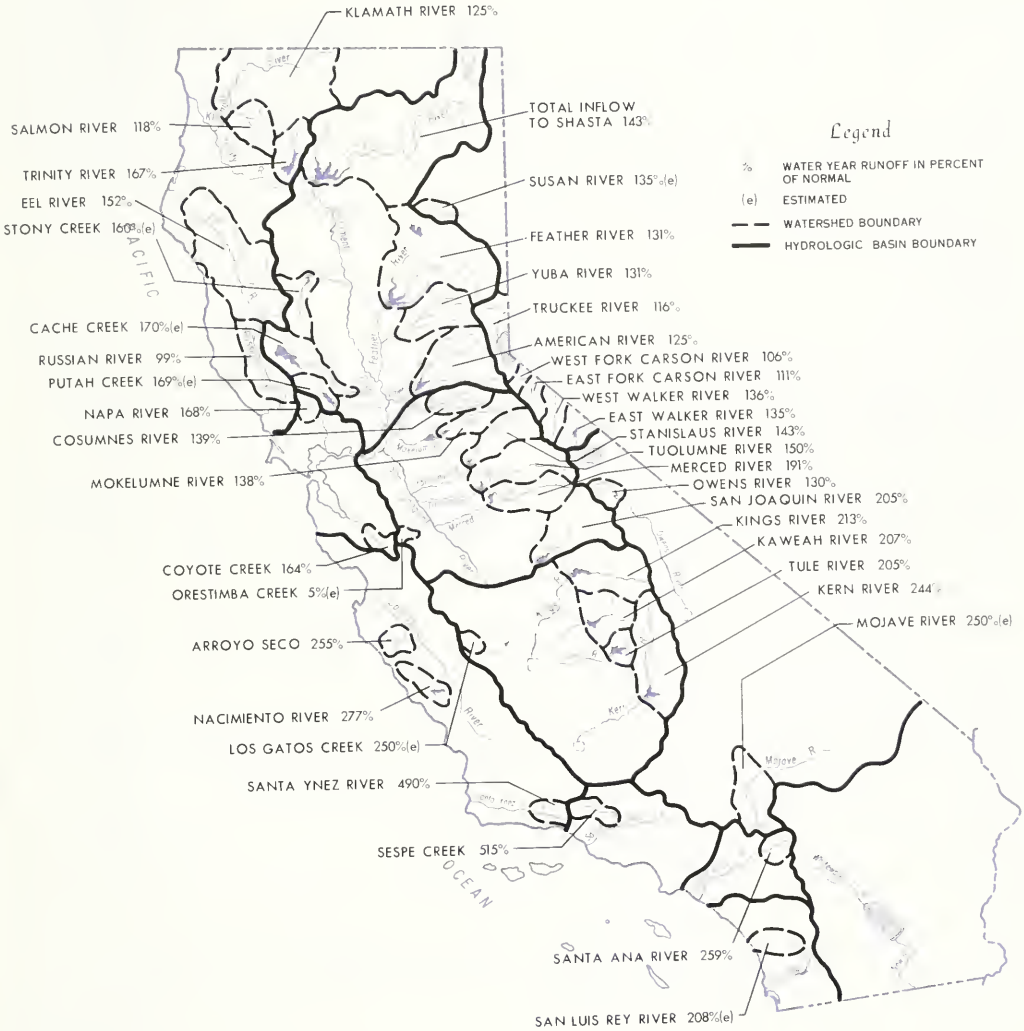


TABLE 2. STREAMFLOW DATA FOR SELECTED STREAMS (METRIC UNITS)

BASIN, STREAM, AND STATION	SNOWMELT PERIOD APRIL 1, 1978 - JULY 31, 1978				WATER YEAR OCTOBER 1, 1977 - SEPTEMBER 30, 1978			
	MEASURED FLOW	UNIMPAIRED RUNOFF (2)			MEASURED FLOW	UNIMPAIRED RUNOFF (2)		
	CUBIC DEKAMETRES	50-YR AVG (3) CUBIC DEKAMETRES	PERIOD TOTAL CUBIC DEKAMETRES	PERCENT OF AVERAGE	CUBIC DEKAMETRES	50-YR AVG (3) CUBIC DEKAMETRES	ANNUAL TOTAL CUBIC DEKAMETRES	PERCENT OF AVERAGE
(1)								
NORTH COAST BASIN								
KLAMATH, CORCO TO ORLEANS (4)	---	---	---	--	6 565 000	5 460 000	6 846 000	125
SALMON AT SOMESBAR	---	---	---	--	1 781 000	1 510 000	1 781 000	118
TRINITY AT LEWISTON	90 000	761 000	1 018 000	134	212 000	1 520 000	2 527 000	166
EEL AT SCOTIA	---	---	---	--	9 838 000	6 640 000	10 081 000	152
RUSSIAN AT HEALDSBURG	---	---	---	--	2 408 000	986 000	2 276 000	231
SAN FRANCISCO BAY BASIN								
NAPA NEAR ST. HELENA	---	---	---	--	138 000	82 000	138 000	169
COYOTE CREEK NEAR MADRONE	---	---	---	--	31 000	56 000	92 000	164
CENTRAL COAST BASIN								
ARROYO SECO NEAR SOLEDAD	---	---	---	--	340 000	134 000	341 000	253
NACIMIENTO BELOW NACIMIENTO DAM, NEAR BRADLEY	---	---	---	--	392 000	236 000	651 000	276
SANTA YNEZ ABOVE GIBRALTAR DAM, NEAR SANTA BARBARA	---	---	---	--	(11)	50 000	247 000	490
LOS ANGELES BASIN								
SESPE CREEK NEAR FILLMORE	---	---	---	--	489 000	95 000	489 000	515
SANTA ANA BASIN								
SANTA ANA NEAR MENTONE	---	---	---	--	141 000	68 000	176 000	259
SAN DIEGO BASIN								
SAN LUIS REY AT OCEANSIDE	---	---	---	--	(11)	47 000	99 000	208
SACRAMENTO BASIN								
INFLOW TO SHASTA (8)	2 540 000	2 196 000	2 540 000	116	9 669 000	6 760 000	9 669 000	143
SACRAMENTO ABOVE BEND BRIDGE, NEAR RED BLUFF (9)	3 523 000	2 985 000	3 702 000	124	11 123 000	9 810 000	14 806 000	151
FEATHER, INFLOW TO OROVILLE	1 210 000	2 294 000	2 635 000	115	2 825 000	5 290 000	6 943 000	131
YUBA AT SMARTVILLE (10)	881 000	1 332 000	1 655 000	124	2 351 000	2 800 000	3 665 000	131
AMERICAN, INFLOW TO FOLSOM	1 318 000	1 628 000	2 025 000	124	2 877 000	3 170 000	3 953 000	125
STONY CREEK BELOW BLACK BUTTE DAM	---	---	---	--	2 877 000	3 170 000	765 000	160
CACHE CREEK NEAR CAPAY	---	---	---	--	780 000	635 000	1 078 000	170
PUTAH CREEK NEAR WINTERS	---	---	---	--	(11)	444 000	752 000	169
SAN JOAQUIN BASIN								
COSUMNES AT MICHIGAN BAR	238 000	163 000	242 000	149	547 000	433 000	600 000	139
MOKELUMNE, INFLOW TO PAROEE	602 000	575 000	808 000	141	1 042 000	870 000	1 196 000	138
STANISLAUS, INFLOW TO MELONES	666 000	884 000	1 281 000	145	1 016 000	1 340 000	1 919 000	143
TUOLUMNE, INFLOW TO DON PEDRO	825 000	1 468 000	2 222 000	151	1 180 000	2 210 000	3 327 000	151
MERCED, INFLOW TO EXCHEQUER	834 000	750 000	1 458 000	194	1 283 000	1 130 000	2 164 000	190
ORESTIMBA CREEK NEAR NEWMAN	---	---	---	--	(11)	13 000	21 000	157
SAN JOAQUIN, INFLOW TO MILLERTON	2 290 000	1 468 000	2 876 000	196	3 752 000	2 050 000	4 196 000	205
TULARE LAKE BASIN								
KINGS, INFLOW TO PINE FLAT	3 220 000	197 000	2 900 000	203	3 836 000	1 940 000	4 112 000	212
KAWEAH, INFLOW TO TERMINUS	669 000	333 000	669 000	201	1 016 000	497 000	1 027 000	207
LOS GATOS CREEK NEAR COALINGA	---	---	---	--	(11)	4 000	9 000	250
TULE, INFLOW TO SUCCESS	158 000	73 000	158 000	216	312 000	164 000	337 000	205
KERN, INFLOW TO ISABELLA	1 311 000	518 000	1 311 000	253	1 426 000	773 000	1 885 000	244
NORTH LAHONTAN BASIN								
SUSAN AT SUSANVILLE	---	---	---	--	(11)	62 000	83 000	135
TRUCKEE, TAHOE TO FARAD (4)	317 000	326 000	387 000	119	501 000	470 000	543 000	116
WEST FORK CARSON AT WOODFOROS	76 000	63 000	76 000	120	92 000	86 000	92 000	106
EAST FORK CARSON NEAR GARDNERVILLE	263 000	225 000	263 000	117	339 000	306 000	339 000	392
WEST WALKER BELOW LITTLE WALKER, NEAR COLEVILLE	242 000	176 000	242 000	137	296 000	218 000	296 000	136
EAST WALKER NEAR BRIDGEPORT	93 000	74 000	116 000	155	139 000	131 000	176 000	135
SOUTH LAHONTAN BASIN								
OWENS BELOW LONG VALLEY DAM	933 000	73 000	123 000	167	219 000	175 000	228 000	130
MOJAVE AT BARSTOW	---	---	---	--	(11)	1 111 000	278 000	250
COLORADO RIVER BASIN								
COLORADO, INFLOW TO LAKE POWELL	8 414 000	9 424 000	11 095 000	118	12 037 000	13 900 000	14 191 000	102

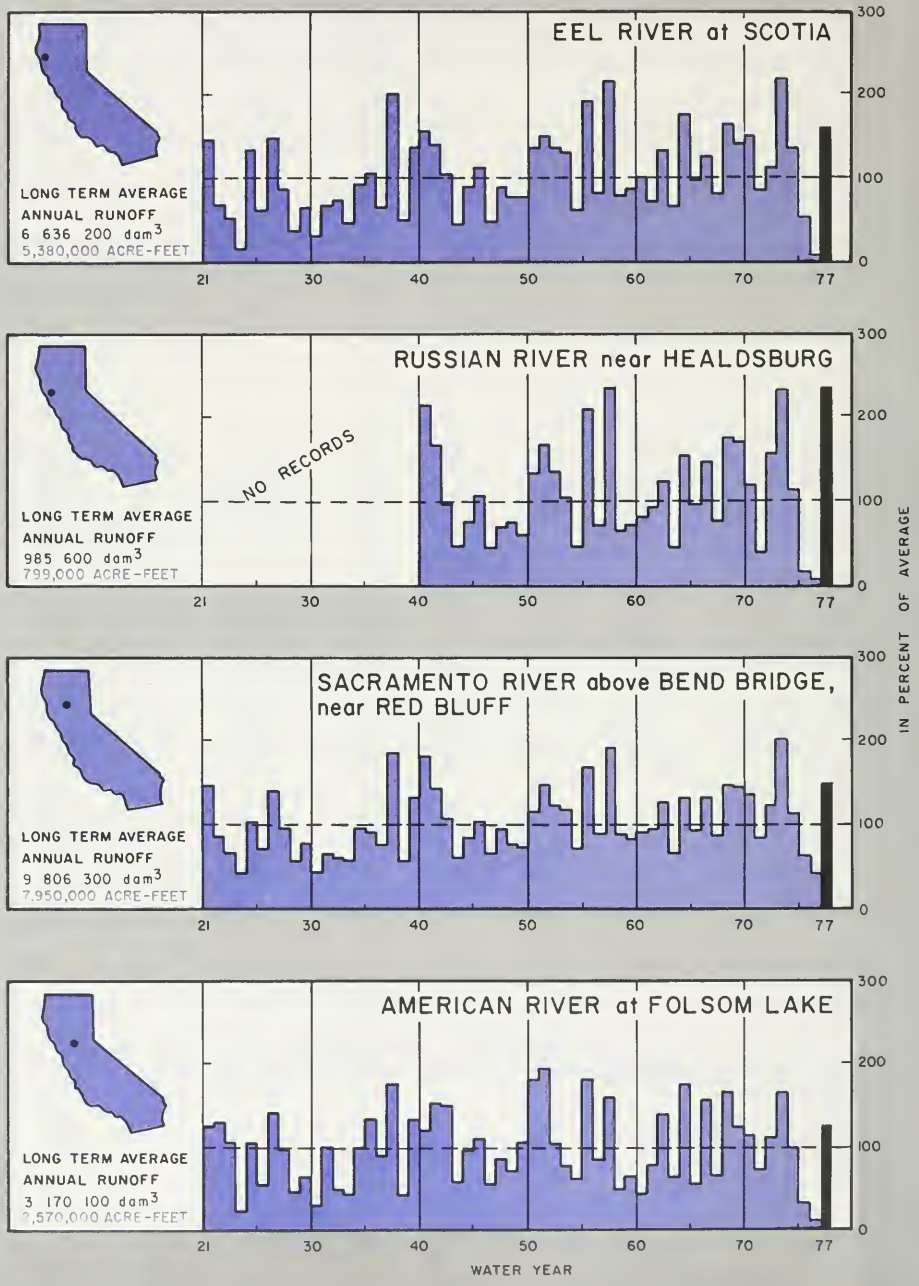
(1) RESERVOIR INFLOW DATA ARE BASED ON OBSERVED FLOWS AT STATIONS DOWNSTREAM FROM LISTED FACILITY.
(2) THE UNIMPAIRED RUNOFF OF A STREAM AT ANY STATION IS THE RUNOFF WHICH WOULD HAVE OCCURRED UNDER NATURAL CONDITIONS, UNALTERED BY UPSTREAM DIVERSIONS, STORAGE DEVELOPMENTS, OR BY EXPORTATION OR IMPORTATION OF WATER TO OR FROM OTHER WATERSHEDS.
(3) AVERAGES ARE COMPUTED FOR THE 50-YEAR PERIOD 1921-70.
(4) ACCRETIONS BETWEEN STATIONS.
(5) ESTIMATED VALUE.
(6) INCLUDES FILLMORE IRRIGATION COMPANY CANAL.
(7) INCLUDES SOUTHERN CALIFORNIA EDISON COMPANY CANAL.
(8) COMPUTED FROM OPERATING RECORDS -- UNADJUSTED FOR UPSTREAM REGULATION.
(9) UNIMPAIRED FLOWS COMPATIBLE TO THOSE AT DISCONTINUED STATION NEAR RED BLUFF.
(10) INCLUDES DEER CREEK.
(11) DATA NOT AVAILABLE AT TIME OF PUBLICATION.

TABLE 2. STREAMFLOW DATA FOR SELECTED STREAMS (ENGLISH UNITS)

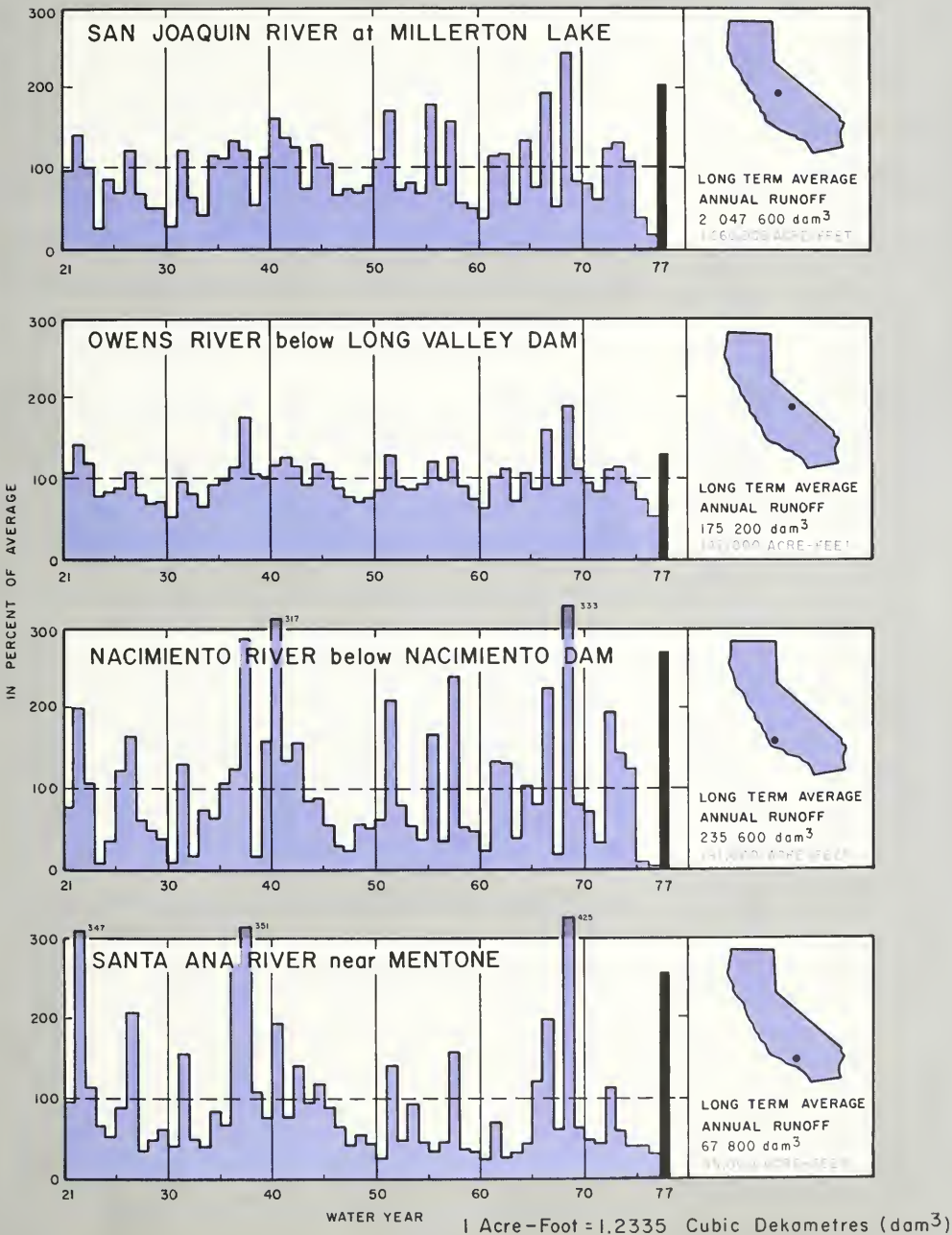
BASIN, STREAM, AND STATION (1)	SNOWMELT PERIOD APRIL 1, 1978 - JULY 31, 1978				WATER YEAR OCTOBER 1, 1977 - SEPTEMBER 30, 1978			
	MEASURED FLOW ACRE-FEET	UNIMPAIRED RUNOFF (2)			MEASURED FLOW ACRE-FEET	UNIMPAIRED RUNOFF (2)		
		50-YEAR AVERAGE AC-FT (3)	PERIOD TOTAL ACRE-FEET	PERCENT OF AVERAGE		50-YEAR AVERAGE AC-FT (3)	ANNUAL TOTAL ACRE-FEET	PERCENT OF AVERAGE
NORTH COAST BASIN								
KLAMATH, COPCO TO ORLEANS (4)	---	---	---	--	5,322,000	4,430,000	5,550,000	125
SALMON AT SOMESBAR	---	---	---	--	1,444,000	1,220,000	1,444,000	118
TRINITY AT LEWISTON	73,000	617,000	825,000	134	172,000	1,230,000	2,049,000	166
EEL AT SCOTIA	---	---	---	--	7,976,000	5,380,000	8,173,000	152
RUSSIAN NEAR HEALDSBURG	---	---	---	--	1,953,000	799,000	1,845,000	231
SAN FRANCISCO BAY BASIN								
NAPA NEAR ST. HELENA	---	---	---	--	112,000	66,500	112,000	169
COYOTE CREEK NEAR MADRONE	---	---	---	--	25,000	45,400	74,000	164
CENTRAL COAST BASIN								
ARROYO SECO NEAR SOLEDAD	---	---	---	--	276,000	109,000	276,000	253
NACIMIENTO BELOW NACIMIENTO DAM, NEAR BRADLEY	---	---	---	--	318,000	191,000	528,000	276
SANTA YNEZ ABOVE GIBRALTAR DAM, NEAR SANTA BARBARA	---	---	---	--	(11)	40,000	200,000(5)	490(5)
LOS ANGELES BASIN								
SESPE CREEK NEAR FILLMORE	---	---	---	--	396,000	76,000	396,000	515
SANTA ANA BASIN								
SANTA ANA NEAR MENTONE	---	---	---	--	114,000	55,000	143,000	259
SAN DIEGO BASIN								
SAN LUIS REY AT OCEANSIDE	---	---	---	--	(11)	38,200	80,000(5)	208
SACRAMENTO BASIN								
INFLOW TO SHASTA (8)	2,059,000	1,780,000	2,059,000	116	7,838,000	5,480,000	7,838,000	143
SACRAMENTO ABOVE BEND BRIDGE, NEAR RED BLUFF (9)	2,856,000	2,420,000	3,002,000	124	9,018,000	7,950,000	12,003,000	151
FEATHER, INFLOW TO OROVILLE	981,000	1,860,000	2,136,000	115	2,290,000	4,290,000	5,628,000	131
YUBA AT SMARTVILLE (10)	715,000	1,080,000	1,341,000	124	1,906,000	2,270,000	2,971,000	131
AMERICAN, INFLOW TO FOLSOM	1,068,000	1,320,000	1,642,000	124	2,333,000	2,570,000	3,205,000	125
STONY CREEK BELOW BLACK BUTTE DAM	---	---	---	--	(11)	387,000	620,000	160
CACHE CREEK NEAR CAPAY	---	---	---	--	632,000	515,000	874,000	170
PUTAH CREEK NEAR WINTERS	---	---	---	--	(11)	360,000	610,000	169
SAN JOAQUIN BASIN								
COSUMNES AT MICHIGAN BAR	193,000	132,000	196,000	149	443,000	351,000	486,000	139
MOKELUMNE, INFLOW TO PARDEE	488,000	466,000	655,000	141	845,000	705,000	970,000	138
STANISLAUS, INFLOW TO MELONES	540,000	717,000	1,039,000	145	824,000	1,090,000	1,556,000	143
TUOLUMNE, INFLOW TO DON PEDRO	669,000	1,190,000	1,801,000	151	956,000	1,790,000	2,697,000	151
MERCED, INFLOW TO EXCHEQUER	676,000	608,000	1,182,000	194	1,040,000	920,000	1,755,000	190
ORESTIMBA CREEK NEAR NEWMAN	---	---	---	--	(11)	10,800	17,000	157
SAN JOAQUIN, INFLOW TO MILLERTON	1,856,000	1,190,000	2,332,000	196	3,042,000	1,660,000	3,402,000	205
TULARE LAKE BASIN								
KINGS, INFLOW TO PINE FLAT	2,611,000	1,160,000	2,351,000	203	3,110,000	1,570,000	3,334,000	212
KAWEAH, INFLOW TO TERMINUS	542,000	270,000	542,000	201	824,000	403,000	833,000	207
LOS GATOS CREEK NEAR COALINGA	---	---	---	--	(11)	3,000	7,500	250
TULE, INFLOW TO SUCCESS	128,000	59,200	128,000	216	253,000	133,000	273,000	205
KERN, INFLOW TO ISABELLA	1,063,000	420,000	1,063,000	253	1,156,000	627,000	1,528,000	244
NORTH LAHONTAN BASIN								
SUSAN AT SUSANVILLE	---	---	---	--	(11)	50,000(5)	68,000	135
TRUCKEE, TAHOE TO FARAD (4)	257,000	264,000	314,000	119	406,000	381,000	440,000	116
WEST FORK CARSON AT WOODFORDS	61,000	51,100	61,000	120	75,000	70,100	75,000	106
EAST FORK CARSON NEAR GARDNERVILLE	213,000	182,000	213,000	117	275,000	248,000	275,000	392
WEST WALKER BELOW LITTLE WALKER, NEAR COLEVILLE	196,000	143,000	196,000	137	240,000	177,000	240,000	136
EAST WALKER NEAR BRIDGEPORT	76,000	60,300	94,000	155	113,000	106,000	143,000	135
SOUTH LAHONTAN BASIN								
OWENS BELOW LONG VALLEY DAM	76,000	59,500	100,000	167	177,000	142,000	185,000	130
	---	---	---	--	(11)	90,000(5)	225,000	250
COLORADO RIVER BASIN								
COLORADO, INFLOW TO LAKE POWELL	6,821,000	7,640,000	8,995,000	118	9,758,000	11,300,000	11,504,000	102

(1) RESERVOIR INFLOW DATA ARE BASED ON OBSERVED FLOWS AT STATIONS DOWNSTREAM FROM LISTED FACILITY.
(2) THE UNIMPAIRED RUNOFF OF A STREAM AT ANY STATION IS THE RUNOFF WHICH WOULD HAVE OCCURRED UNDER NATURAL CONDITIONS, UNALTERED BY UPSTREAM DIVERSIONS, STORAGE DEVELOPMENTS, OR BY EXPORTATION OR IMPORTATION OF WATER TO OR FROM OTHER WATERSHEDS.
(3) AVERAGES ARE COMPUTED FOR THE 50-YEAR PERIOD 1921-70.
(4) ACCRETIONS BETWEEN STATIONS.
(5) ESTIMATED VALUE.
(6) INCLUDES FILLMORE IRRIGATION COMPANY CANAL.
(7) INCLUDES SOUTHERN CALIFORNIA EDISON COMPANY CANAL.
(8) COMPUTED FROM OPERATING RECORDS -- UNADJUSTED FOR UPSTREAM REGULATION.
(9) UNIMPAIRED FLOWS COMPATIBLE TO THOSE AT DISCONTINUED STATION NEAR RED BLUFF.
(10) INCLUDES DEER CREEK.
(11) DATA NOT AVAILABLE AT TIME OF PUBLICATION.

FIGURE 10. ANNUAL UNIMPAIRED



RUNOFF AT SELECTED STATIONS



1 Acre-Foot = 1.2335 Cubic Dekometres (dam3)

TABLE 3. STORAGE IN MAJOR RESERVOIRS (METRIC UNITS)

HYDROLOGIC BASIN AND STREAM	RESERVOIR	OPERATOR	CAPACITY CUBIC DEKAMETRES (1)	STORAGE AS OF OCTOBER 1 -- CUBIC DEKAMETRES (1)			
				10-YEAR AVERAGE 1968-1977	1977	1978	PERCENT OF AVERAGE
NORTH COAST BASIN							
KLAMATH RIVER	UPPER KLAMATH(2)	US BUREAU RECLAMATION	720	363	276	363	100
KLAMATH RIVER	CLEAR LAKE(2)	US BUREAU RECLAMATION	650	304	180	201	66
TRINITY RIVER	CLAIR ENGLE	US BUREAU RECLAMATION	3 020	2 081	300	2 307	111
RUSSIAN RIVER	LAKE MENDOCIND	US CORPS OF ENGINEERS	152	62	16	81	134
SAN FRANCISCO BAY BASIN							
CALAVERAS CREEK	CALAVERAS(3)	CITY-CO SAN FRANCISCO	123	63	33	75	119
CENTRAL COAST BASIN							
SAN ANTONIO RIVER	SAN ANTONIO	MONTEREY CO FCWCD	432	260	64	291	112
NACIMIENTO RIVER	NACIMIENTO	MONTEREY CO FCWCD	432	123	27	286	233
SANTA YNEZ RIVER	CACHUMA	US BUREAU RECLAMATION	253	200	138	238	119
SOUTH COAST (8)							
COYOTE CREEK	CASITAS	CASITAS MUNICIPAL WD	313	244	225	301	123
PIRU CREEK	LAKE PIRU	UNITED WATER CON DIST	125	28	17	86	300
PIRU CREEK	PYRAMID(3)	CALIF DEPT WATER RES	211	202(6)	203	206	101
CASTAIC CREEK	CASTAIC(3)	CALIF DEPT WATER RES	400	72(6)	72	398	199
--	PERRIS(3)	CALIF DEPT WATER RES	163	93(6)	93	162	151
TRIB CAJALCO CREEK	LAKE MATHEWS(4)	METRDPOLITAN WATER DIST	224	134	134	101	78
SAN JACINTO RIVER	LAKE ELSINORE	CALIF DEPT PARKS AND REC	154	27(6)	10	61	227
SAN LUIS REY RIVER	HENSHAW	VISTA IRRIGATION DIST	252	7	1	5	61
SAN DIEGO RIVER	EL CAPITAN(3)	CITY OF SAN DIEGO	144	27	19	72	268
CENTRAL VALLEY (9)							
SACRAMENTO RIVER	SHASTA	US BUREAU RECLAMATION	5 610	3 534	778	4 228	120
CLEAR CREEK	WHISKEYTOWN	US BUREAU RECLAMATION	297	273	268	284	104
N FK FEATHER RIVER	LAKE ALMANOR	PAC GAS AND ELEC CO	1 620	974	669	1 102	113
BUCKS CREEK	BUCKS LAKE	PAC GAS AND ELEC CO	127	74	46	89	120
FEATHER RIVER	ORDVILLE	CALIF DEPT WATER RES	4 370	2 846(6)	1 129	3 385	119
NORTH YUBA RIVER	NEW BULLARDS BAR	YUBA CO WATER AGENCY	1 190	687(6)	318	718	104
SOUTH YUBA RIVER	SPAULDING SYSTEM	PAC GAS AND ELEC CO	169	79	76	78	98
BEAR RIVER	CAMP FAR WEST	SO SUTTER WATER DIST	127	53	4	83	156
M FK AMERICAN RIVER	FRENCH MEADOWS	PLACER CO WATER AGENCY	165	96	47	120	124
RUBICON RIVER	HELL HOLE	PLACER CO WATER AGENCY	257	150	96	181	120
SILVER CREEK	UNION VALLEY	SACRAMENTO MUN UD	334	189	70	250	133
AMERICAN RIVER	FOLSOM	US BUREAU RECLAMATION	1 250	754	181	863	115
STONY CREEK	BLACK BUTTE	US CORPS OF ENGINEERS	197	33	1	47	141
CACHE CREEK	CLEAR LAKE	YOLO COUNTY FCWCD	518	70	0	105	149
N FK CACHE CREEK	INDIAN VALLEY	YOLO COUNTY FCWCD	370	0(6)	0	194	0
PUTAH CREEK	LAKE BERRYESSA	US BUREAU RECLAMATION	1 970	1 567	936	1 383	88
N KF MOKELUMNE RIVER	SALT SPRINGS	PAC GAS AND ELEC CO	171	83	5	111	135
MOKELUMNE RIVER	PARDEE	EAST BAY MUN UD	259	216	102	218	101
MOKELUMNE RIVER	CAMANCHE	EAST BAY MUN UD	533	321	68	417	130
CALAVERAS RIVER	NEW HOGAN	US CORPS OF ENGINEERS	401	157	14	200	128
STANISLAUS RIVER	MELONES	PAC GAS AND ELEC CO	139	12	4	64	534
CHERRY CREEK	CHERRY LAKE	CITY-CO SAN FRANCISCO	332	173	130	242	139
TUOLUMNE RIVER	HETCH HETCHY	CITY-CO SAN FRANCISCO	444	270	139	402	149
TUOLUMNE RIVER	DON PEDRO	TURLOCK-MODESTO ID	2 500	1 003(6)	379	1 943	193
MERCED RIVER	LAKE MCCLURE	MERCED IRRIG DISTRICT	1 270	616	116	945	153
SAN JOAQUIN RIVER	MAMMOTH POOL	SO CALIFORNIA EDISON CO	152	41	25	101	246
MONO CREEK	THOMAS A EDISON	SO CALIFORNIA EDISON CO	154	93	7	153	164
STEVENSON CREEK	SHAVER LAKE	SO CALIFORNIA EDISON CO	167	80	36	158	197
SAN JOAQUIN RIVER	MILLERTON LAKE	US BUREAU RECLAMATION	643	218	243	466	214
SAN LUIS CREEK	SAN LUIS(3)	US BUREAU REC-CALIF DWR	2 520	1 706(6)	338	2 120	123
HELMS CREEK	COURTRIGHT	PAC GAS AND ELEC CO	152	43	1	88	205
N FK KINGS RIVER	WISHON	PAC GAS AND ELEC CO	158	107	99	123	115
KINGS RIVER	PINE FLAT	US CORPS OF ENGINEERS	1 230	454	84	909	200
KAWEAH RIVER	TERMINUS	US CORPS OF ENGINEERS	185	21	12	27	131
KERN RIVER	ISABELLA	US CORPS OF ENGINEERS	703	199	44	454	229
LAHONTAN (10)							
LITTLE TRUCKEE RIVER	STAMPEDE(2)	US BUREAU RECLAMATION	280	150(6)	38	76	50
TRUCKEE RIVER	LAKE TAHOE(2,7)	US BUREAU RECLAMATION	919	575	0	220	38
OWENS RIVER	LAKE CROWLEY	LOS ANGELES DEPT WP	227	148	64	212	143
COLORADO RIVER BASIN							
COLORADO RIVER	LAKE POWELL(2,7)	US BUREAU RECLAMATION	30 800	18 335	19 914	20 430	111
COLORADO RIVER	LAKE MEAD(2,7)	US BUREAU RECLAMATION	32 200	22 476	24 923	25 742	115
COLORADO RIVER	LAKE MOHAVE(2,7)	US BUREAU RECLAMATION	2 230	1 779	1 807	1 831	103
COLORADO RIVER	LAKE HAVASU(2,7)	US BUREAU RECLAMATION	764	696	698	699	101

(1) CAPACITY AND STORAGE VALUES ROUNDED TO NEAREST THREE SIGNIFICANT NUMBERS.
(2) INTERSTATE RESERVOIR USED JOINTLY BY CALIFORNIA AND ADJACENT STATES.
(3) INCLUDES FOREIGN WATER.
(4) STORES ONLY IMPORTED COLORADO RIVER WATER.
(5) NEW RESERVOIR -- AVERAGE CONSIDERED EQUAL TO CURRENT STORAGE.
(6) LESS THAN 10-YEAR AVERAGE.
(7) DATA BASED ON ACTIVE OR USABLE CAPACITY TABLES.
(8) SOUTH COAST INCLUDES LOS ANGELES, SANTA ANA, AND SAN DIEGO BASINS.
(9) CENTRAL VALLEY INCLUDES SACRAMENTO, SAN JOAQUIN, AND TULARE LAKE BASINS.
(10) LAHONTAN INCLUDES NORTH AND SOUTH LAHONTAN BASINS.

TABLE 3. STORAGE IN MAJOR RESERVOIRS (ENGLISH UNITS)

HYDROLOGIC BASIN AND STREAM	RESERVOIR	OPERATOR	CAPACITY 1000 ACRE-FEET (1)	STORAGE AS OF OCTOBER 1 -- 1000 ACRE-FEET (1)			
				10-YEAR AVERAGE 1968-1977	1977	1978	PERCENT OF AVERAGE
NORTH COAST BASIN							
KLAMATH RIVER	UPPER KLAMATH(2)	US BUREAU RECLAMATION	584	294	224	294	100
KLAMATH RIVER	CLEAR LAKE(2)	US BUREAU RECLAMATION	527	247	147	163	66
TRINITY RIVER	CLAIR ENGLE	US BUREAU RECLAMATION	2,450	1,687	242	1,870	111
RUSSIAN RIVER	LAKE MENDOCINO	US CORPS OF ENGINEERS	123	50	13	66	134
SAN FRANCISCO BAY BASIN							
CALAVERAS CREEK	CALAVERAS(3)	CITY-CO SAN FRANCISCO	100	51	27	61	119
CENTRAL COAST BASIN							
SAN ANTONIO RIVER	SAN ANTONIO	MONTEREY CO FCWCD	350	211	52	236	112
NACIMIENTO RIVER	NACIMIENTO	MONTEREY CO FCWCD	350	100	22	232	233
SANTA YNEZ RIVER	CACHUMA	US BUREAU RECLAMATION	205	162	112	193	119
SOUTH COAST (8)							
COYOTE CREEK	CASITAS	CASITAS MUNICIPAL WD	254	198	182	244	123
PIRU CREEK	LAKE PIRU	UNITED WATER CON DIST	101	23	14	70	300
PIRU CREEK	PYRAMID(3)	CALIF DEPT WATER RES	171	164(6)	165	167	101
CASTAIC CREEK	CASTAIC(3)	CALIF DEPT WATER RES	324	162(6)	58	324	199
--	PERRIS(3)	CALIF DEPT WATER RES	132	86(6)	75	131	151
TRIB CAJALCO CREEK	LAKE MATHEWS(4)	METROPOLITAN WATER DIST	182	105	109	82	78
SAN JACINTO RIVER	LAKE ELSINORE	CALIF DEPT PARKS AND REC	125	22(6)	8	50	227
SAN LUIS REY RIVER	HENSHAW	VISTA IRRIGATION DIST	204	6	1	4	61
SAN DIEGO RIVER	EL CAPITAN(3)	CITY OF SAN DIEGO	117	22	15	58	268
CENTRAL VALLEY (9)							
SACRAMENTO RIVER	SHASTA	US BUREAU RECLAMATION	4,550	2,865	631	3,428	120
CLEAR CREEK	WHISKEYTOWN	US BUREAU RECLAMATION	241	221	217	230	104
N FK FEATHER RIVER	LAKE ALMANOR	PAC GAS AND ELEC CO	1,310	794	542	893	113
BUCKS CREEK	BUCKS LAKE	PAC GAS AND ELEC CO	103	60	37	72	120
FEATHER RIVER	OROVILLE	CALIF DEPT WATER RES	3,540	2,307(6)	915	2,744	119
NORTH YUBA RIVER	NEW BULLARDS BAR	YUBA CO WATER AGENCY	961	557(6)	258	582	104
SOUTH YUBA RIVER	SPAULDING SYSTEM	PAC GAS AND ELEC CO	137	64	62	63	98
BEAR RIVER	CAMP FAR WEST	SO SUTTER WATER DIST	103	43	3	67	156
M FK AMERICAN RIVER	FRENCH MEADOWS	PLACER CO WATER AGENCY	134	78	38	97	124
RUBICON RIVER	HELL HOLE	PLACER CO WATER AGENCY	208	122	78	147	120
SILVER CREEK	UNION VALLEY	SACRAMENTO MUN UD	271	153	57	203	133
AMERICAN RIVER	FOLSOM	US BUREAU RECLAMATION	1,010	611	147	700	115
STONY CREEK	BLACK BUTTE	US CORPS OF ENGINEERS	160	27	1	38	141
CACHE CREEK	CLEAR LAKE	YOLO COUNTY FCWCD	420	57	0	85	149
N FK CACHE CREEK	INDIAN VALLEY	YOLO COUNTY FCWCD	300	0(6)	0	157	0
PUTAH CREEK	LAKE BERRYESSA	US BUREAU RECLAMATION	1,600	1,670	759	1,121	88
N FK MOKELUMNE RIVER	SALT SPRINGS	PAC GAS AND ELEC CO	139	67	4	90	135
MOKELUMNE RIVER	PARDEE	EAST BAY MUN UD	210	175	83	177	101
MOKELUMNE RIVER	CAMANCHE	EAST BAY MUN UD	432	260	55	338	130
CALAVERAS RIVER	NEW HOGAN	US CORPS OF ENGINEERS	325	127	11	162	128
STANISLAUS RIVER	MELONES	PAC GAS AND ELEC CO	113	10	3	52	534
CHERRY CREEK	CHERRY LAKE	CITY-CO SAN FRANCISCO	269	140	105	196	139
TUOLUMNE RIVER	HETCH HETCHY	CITY-CO SAN FRANCISCO	360	219	113	326	149
TUOLUMNE RIVER	DON PEDRO	TURLOCK-MODESTO ID	2,030	813(6)	307	1,575	193
MERCED RIVER	LAKE MCCLURE	MERCED IRRIG DISTRICT	1,030	499	94	766	153
SAN JOAQUIN RIVER	MAMMOTH POOL	SO CALIFORNIA EDISON CO	123	33	20	82	246
MONO CREEK	THOMAS A EDISON	SO CALIFORNIA EDISON CO	125	75	6	124	164
STEVENSON CREEK	SHAVER LAKE	SO CALIFORNIA EDISON CO	135	65	29	128	197
SAN JOAQUIN RIVER	MILLERTON LAKE	US BUREAU RECLAMATION	521	177	197	379	214
SAN LUIS CREEK	SAN LUIS(3)	US BUREAU REC-CALIF DWR	2,040	1,383(6)	274	1,719	123
HELMS CREEK	COURTRIGHT	PAC GAS AND ELEC CO	123	35	1	71	205
N FK KINGS RIVER	WISHON	PAC GAS AND ELEC CO	128	87	80	600	115
KINGS RIVER	PINE FLAT	US CORPS OF ENGINEERS	1,000	368	68	737	200
KAWEAH RIVER	TERMINUS	US CORPS OF ENGINEERS	150	17	10	22	131
KERN RIVER	ISABELLA	US CORPS OF ENGINEERS	570	161	36	368	229
LAHONTAN (10)							
LITTLE TRUCKEE RIVER	STAMPEDE(2)	US BUREAU RECLAMATION	227	122(6)	31	62	50
TRUCKEE RIVER	LAKE TAHOE(2,7)	US BUREAU RECLAMATION	745	466	0	178	38
OWENS RIVER	LAKE CROWLEY	LOS ANGELES DEPT WP	184	120	52	172	143
COLORADO RIVER BASIN							
COLORADO RIVER	LAKE POWELL(2,7)	US BUREAU RECLAMATION	25,000	14,864	16,144	16,563	111
COLORADO RIVER	LAKE MEAD(2,7)	US BUREAU RECLAMATION	26,100	18,221	20,205	20,860	115
COLORADO RIVER	LAKE MOHAVE(2,7)	US BUREAU RECLAMATION	1,810	1,442	1,465	1,484	103
COLORADO RIVER	LAKE HAVASU(2,7)	US BUREAU RECLAMATION	619	564	566	567	101

(1) CAPACITY AND STORAGE VALUES ROUNDED TO NEAREST THREE SIGNIFICANT NUMBERS.
(2) INTERSTATE RESERVOIR USED JOINTLY BY CALIFORNIA AND ADJACENT STATES.
(3) INCLUDES FOREIGN WATER.
(4) STORES ONLY IMPORTED COLORADO RIVER WATER.
(5) NEW RESERVOIR -- AVERAGE CONSIDERED EQUAL TO CURRENT STORAGE.
(6) LESS THAN 10-YEAR AVERAGE.
(7) DATA BASED ON ACTIVE OR USABLE CAPACITY TABLES.
(8) SOUTH COAST INCLUDES LOS ANGELES, SANTA ANA, AND SAN DIEGO BASINS.
(9) CENTRAL VALLEY INCLUDES SACRAMENTO, SAN JOAQUIN, AND TULARE LAKE BASINS.
(10) LAHONTAN INCLUDES NORTH AND SOUTH LAHONTAN BASINS.

RESERVOIR STORAGE

On October 1, 1977 water storage in 153 major reservoirs had been reduced by two consecutive years of drought to an all-time low record of 9.74 cubic dekametres (7.9 million acre-feet), or 38 percent of average and 23 percent of available capacity.

Heavy precipitation in the first half of January 1978 brought relief from the drought and caused some minor reservoirs to fill and some major reservoirs to reach normal storage levels by mid month. For example, Folsom Reservoir in the Sacramento River Basin rose rapidly from an all-time low to a level requiring flood control releases.

By June 1, 1978, reservoir storage in the San Joaquin Valley varied from 75 percent of average in the San Joaquin and Kings Rivers to 142 percent of average on the Kern River. Storage in these reservoirs reflected flood control operations space for anticipated above-average inflows from snowmelt. Unusual below-normal temperatures at higher elevations until mid July, however, gave reservoir operators and water managers time to adequately control the season's large runoff.

On September 30, 1978, storage in 153 major reservoirs was 30.3 million dam^3 (24.6 million ac.-ft.) or 127 percent of average and 71 percent of available capacity, an increase of 20.6 million dam^3 (16.7 million ac.-ft.).

TABLE 4. SUMMARY OF RESERVOIR STORAGE DATA

THOUSANDS OF CUBIC DEKAMETRES (THOUSANDS OF ACRE-FEET)

BASIN	NUMBER OF RESERVOIRS	TOTAL CAPACITY	10-YEAR AVERAGE 1968-77	STORAGE OCTOBER 1 1978	PERCENT OF AVERAGE	PERCENT OF CAPACITY
INTRASTATE:						
NORTH COAST	8	3 630 2,940	2 387 1,935	2 667 2,162	112	74
SAN FRANCISCO BAY	18	859 696	477 387	517 419	108	60
CENTRAL COAST	9	1 300 1,059	714 579	966 783	135	75
SOUTH COAST (1)	31	2 840 2,300	1 278 1,036	1 871 1,517	146	66
SACRAMENTO	43	20 100 16,300	12 305 9,976	14 010 11,358	114	70
SAN JOAQUIN AND TULARE LAKE	36	13 200 10,700	6 353 5,150	9 863 7,996	155	75
LAHONTAN (2)	8	525 426	350 284	444 360	127	85
SUBTOTAL	153	42 400 34,400	23 865 19,347	30 338 24,595	127	71
INTERSTATE:						
NORTH COAST	3	1 490 1,210	714 579	464 376	84	40
LAHONTAN (2)	5	1 330 1,080	783 635	44 36	52	31
COLORADO RIVER (3)	4	66 000 53,500	43 285 35,091	47 342 38,380	113	74
SUBTOTAL (3)	12	68 800 55,800	44 782 35,305	47 850 38,792	111	72
TOTAL (3)	165	111 000 90,200	68 647 55,652	78 194 63,387	114	30

(1) INCLUDES LOS ANGELES, SANTA ANA, AND SAN DIEGO BASINS.
(2) INCLUDES NORTH AND SOUTH LAHONTAN BASINS
(3) INCLUDES DATA FOR LAKE MEAD AND LAKE POWELL WHICH REGULATE FLOW OF THE LOWER COLORADO RIVER, THE MAJOR SOURCE OF WATER FOR THE COLORADO RIVER BASIN AND SOUTH COAST AREA.

WATER SUPPLY FORECAST VERIFICATION

Tabulated below are 1977-1978 water supply forecasts published in Bulletin 120, "Water Conditions in California", and the observed unimpaired runoff for 25 major forecast points. Error percentages compare May 1 forecasts to the observed. Forecasts are always subject to limitations in forecasting procedures, and in the uncertainty of future weather. Forecast errors due to forecasting procedures usually range between 5-10 percent. On April 1, 1978, there was a heavy snowpack at the higher elevations, above 1 980 metres (6,500 feet). Cold temperatures and above-normal precipitation during April further increased the snowpack. Average temperatures for May and June continued cool. Absent were the periods of high temperature which normally cause heavy snowmelt runoff. It was not until mid July that temperatures significantly exceeded normal. Consequently, forecasted April-July snowmelt potential was not realized until late August or early September, thus creating an apparent overforecasted situation.

TABLE 5. COMPARISONS OF WATER SUPPLY FORECASTS WITH OBSERVED UNIMPAIRED RUNOFF

Flows In 1 000 Cubic Dekametres -- 1,000 Acre-feet

STREAM AND STATION	FORECASTS								OBSERVED FLOWS		FORECAST ERROR IN PERCENT MAY 1 FORECAST	
	FEBRUARY 1		MARCH 1		APRIL 1		MAY 1					
	APR-JULY	WATER YR	APR-JULY	WATER YR	APR-JULY	WATER YR	APR-JULY	WATER YR	APR-JULY	WATER YR	APR-JULY	WATER YR
TRINITY AT LEWISTON	1 011 820	2344 1,900	1 110 900	2 467 2,000	1 092 885	2 572 2,085	1 246 1,010	2 732 2,215	1 018 825	2 539 2,050	+ 22	+ 8
SACRAMENTO R. - INFLOW TO SHASTA LAKE	481 390	1 523 1,235	537 435	1 678 1,360	567 460	1 776 1,440	703 570	1 918 1,555	491 398	1 708 1,385	+ 43	+ 12
McCLOUD R. - INFLOW TO SHASTA LAKE	555 450	1 653 1,340	580 470	1 813 1,470	617 500	1 881 1,525	715 580	1 992 1,615	510 414	1 711 1,387	+ 40	+ 16
PIT R. - INFLOW TO SHASTA LAKE	125 101	4 348 3,525	1 264 1,025	4 132 3,350	1 283 1,040	4 225 3,425	1 419 1,150	4 373 3,545	1 356 1,099	4 317 3,500	+ 5	+ 1
TOTAL INFLOW TO SHASTA LAKE	2 368 1,920	8 783 7,120	2 467 2,000	9 153 7,420	2 541 2,060	9 633 7,810	3 084 2,500	10 189 8,260	2 540 2,059	9 668 7,838	+ 21	+ 5
SACRAMENTO R. ABOVE BEND BRIDGE	3 238 2,625	12 828 10,400	3 330 2,700	13 569 11,000	3 454 2,800	14 481 11,740	4 317 3,500	15 406 12,490	3 703 3,002	14 806 12,003	+ 17	+ 4
FEATHER R. - INFLOW TO OROVILLE RES.	2 874 2,330	6 846 5,550	3 108 2,520	6 883 5,580	3 121 2,530	7 494 6,075	3 639 2,950	8 030 6,510	2 509 2,034	6 942 5,628	+ 45	+ 16
YUBA R. AT SMARTVILLE	1 493 1,210	3 300 2,675	1 604 1,300	3 306 2,680	1 604 1,300	3 690 2,910	1 949 1,580	3 947 3,200	1 654 1,341	3 665 2,971	+ 18	+ 8
AMERICAN R. - INFLOW TO FOLSOM RES.	1 856 1,505	3 700 3,000	2 035 1,650	3 750 3,040	2 035 1,650	3 953 3,205	2 516 2,040	4 447 3,605	2 024 1,641	3 953 3,205	+ 24	+ 12
COSUMNES R. AT MICHIGAN BAR	197 160	514 417	210 170	506 410	216 175	574 465	296 240	654 530	242 196	600 486	+ 22	+ 9
MOKELUMNE R. - INFLOW TO PARDEE RES.	691 560	1 005 815	759 615	1 086 880	802 650	1 184 960	937 760	1 326 1,075	807 654	1 236 1,002	+ 16	+ 1
STANISLAUS R. - INFLOW TO MELONES RES.	1 061 860	1 499 1,215	1 234 1,000	1 727 1,400	1 357 1,100	2 035 1,650	1 653 1,340	2 276 1,845	1 282 1,039	1 919 1,556	+ 29	+ 19
TUOLUMNE R. - INFLOW TO DON PEDRO RES.	1 789 1,450	2 578 2,090	2 159 1,750	3 084 2,500	2 381 1,930	3 441 2,790	2 837 2,300	3 916 3,175	2 222 1,801	3 327 2,697	+ 28	+ 18
MERCED R. - INFLOW TO EXCHEQUER RES.	987 800	1 456 1,180	1 178 955	1 764 1,430	1 357 1,100	1 998 1,620	1 628 1,320	2 288 1,855	1 458 1,182	2 165 1,755	+ 12	+ 6
SAN JOAQUIN R. - INFLOW TO MILLERTON LAKE	2 097 1,700	2 874 2,330	2 553 2,070	3 528 2,860	3 158 2,560	4 286 3,475	3 565 2,890	4 706 3,815	2 877 2,333	4 196 3,402	+ 24	+ 11
KINGS R. - INFLOW TO PINE FLAT RES.	1 974 1,600	2 671 2,165	2 399 1,945	3 293 2,670	2 899 2,350	3 873 3,140	3 207 2,600	4 194 3,400	2 900 2,351	4 113 3,334	+ 11	+ 2
KAWEAH R. - INFLOW TO TERMINUS RES.	419 340	574 465	537 435	802 650	678 550	999 810	740 600	1 067 865	669 542	1 028 833	+ 11	+ 4
TULE R. - INFLOW TO SUCCESS RES.	93 75	168 136	117 95	271 220	148 120	1 321 260	167 135	339 275	158 128	337 273	+ 5	+ 4
KERN R. - INFLOW TO ISABELLA RES.	648 525	919 745	1 048 850	1 493 1,210	1 480 1,200	2 054 1,665	1 530 1,240	2 115 1,715	1 311 1,063	1 885 1,528	+ 17	+ 12
TRUCKEE R. TAHOE TO FARAO	407 330	543 440	419 340	543 440	401 325	555 450	469 380	623 505	392 318	543 440	+ 19	+ 15
LAKE TAHOE RISE	1.60	--	1.80	--	1.75	--	1.90	--	1.37	--	+ 39	--
EAST CARSON R. NEAR GARONERVILLE	259	327	321	395	333	413	358	413	263	339	+ 36	+ 22
WEST CARSON AT WOODFORDS	210 74	265 93	260 93	320 111	270 93	335 111	290 105	335 123	213 75	275 93	+ 39	+ 33
EAST WALKER R. NEAR BRIDGEPORT	60 105	75 142	75 136	90 173	75 142	90 179	85 160	100 222	61 116	75 176	+ 38	+ 26
WEST WALKER R. NEAR COLEVILLE	85 222 180	115 253 205	110 259 210	140 308 250	115 265 215	145 315 255	130 284 230	180 333 270	94 242 196	143 296 240	+ 17	+ 13

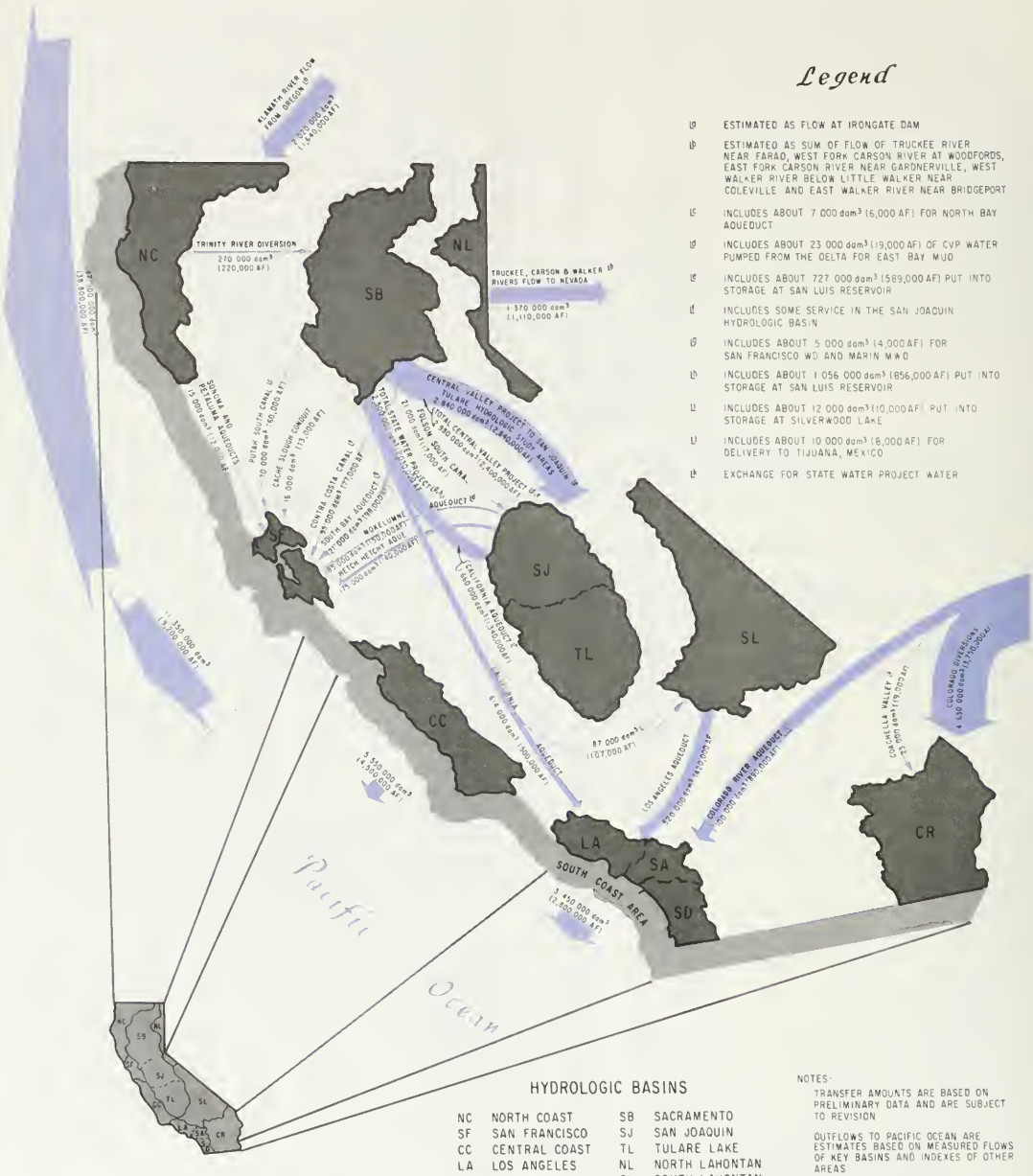
FORECAST ERROR IN PERCENT = $\frac{(\text{FORECAST} - \text{OBSERVED})}{\text{OBSERVED}} \times 100$

MAY 1 APRIL-JULY FORECAST AVERAGE ABSOLUTE ERROR = 28% (25 FORECAST)

MAY 1 WATER YEAR FORECAST AVERAGE ABSOLUTE ERROR = 18% (18 FORECAST)

Note: Acre-Feet = 1.2335 Cubic Dekametres

FIGURE 11. WATER TRANSFERS AND OUTFLOW, 1977-78



WATER TRANSFERS AND OUTFLOW

Heavy rainfall and near-record snow accumulation during the 1977-78 water year brought relief to California following two years of drought. Runoff and reservoir storage reached levels of near normal or greater in almost all portions of the State.

State Water Project diversions from the Delta increased from 936,000 cubic dekametres (759,000 acre-feet) in 1976-77 to 2 499 000 dam^3 (2,026,000 ac.-ft.) in 1977-78. A large portion of this, 1 056 000 dam^3 (856,000 ac.-ft.) was used to increase the depleted storage in San Luis Reservoir. State Water Project deliveries to Southern California increased from 222 000 dam^3 (180,000 ac.-ft.) to 614 000 dam^3 (498,000 ac.-ft.).

Central Valley Project Delta diversions also greatly increased over the previous year from 1 788 000 dam^3 (1,450,000 ac.-ft.) to 2 975 000 dam^3 (2,412,000 ac.-ft.). Of this amount 727 000 dam^3 (589,000 ac.-ft.) was put into storage at San Luis Reservoir. Trinity River diversions dropped sharply from 1 626 000 dam^3 (1,318,000 ac.-ft.) to 269 000 dam^3 (218,000 ac.-ft.).

Hetch Hetchy Aqueduct diversions for San Francisco decreased from 317 000 dam^3 (257,000 ac.-ft.) to 175 000 dam^3 (142,000 ac.-ft.). Emergency Delta diversions to supply water for the drought stricken San Francisco Bay area ended in January 1978 as winter rains eased the critical shortage.

Los Angeles Aqueduct diversions increased from 421 000 dam^3 (341,000 ac-ft.) in 1976-77 to 522 000 dam^3 (423,000 ac.-ft.) in 1977-78.

Colorado River Aqueduct diversions decreased from 1 335 000 dam^3 (1,082,000 ac.-ft.) to 1 100 000 dam^3 (892,000 ac.-ft.) reflecting the increased amount received from the State Water Project.

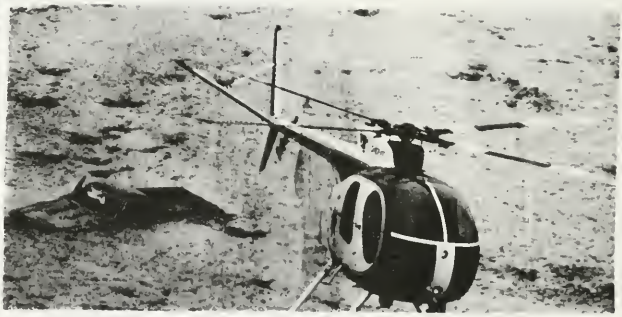
Klamath River inflow from Oregon increased from 1 134 000 dam^3 (919,000 ac.-ft.) in 1976-77 to 2 019 000 dam^3 (1,637,000 ac.-ft.) in 1977-78. The estimated outflow of the Truckee, Carson, and Walker Rivers to Nevada increased from 512 000 dam^3 (415,000 ac.-ft.) to 1 067 000 dam^3 (1,108,-00 ac.-ft.).

Tow truck operator clings to safety rope in Santa Ana River after attaching line to a trapped truck; he was unharmed

Floodwaters of Lytle Creek block Lytle Creek Road

A man and woman comfort one another in the Upper Big Tujunga Canyon area. They were rescued by helicopter after a dam collapsed, sending a wall of water through a trailer park.

Red Hill Country Club Drive in Rancho Cucamonga after water had subsided



San Bernardino sheriff's helicopter participates in search for survivors from a car in Cajon Creek Wash. None were found.

CHAPTER III - FLOOD EVENTS

The sudden turnaround of meteorologic events experienced in water year 1977-78 is convincing evidence that the variability of California weather is its greatest consistency. We are reminded, too, that the transition between drought and flooding can be abrupt and dramatic.

Precipitation during the first two months of water year 1977-78 beginning October 1 was a disappointment to most Californians, who were still feeling the effects of two consecutive years of withering drought. The series of weather fronts that moved through Northern California in late October brought substantial precipitation to some North Coast stations but only light amounts to the northern and central Sierra basins. The remainder of the State remained virtually dry. The estimated 130 percent of normal precipitation needed to alleviate the critical effects of the drought appeared to be even more remote following the meager rainfall of the fall months. Although additional weather fronts passed through Northern California during November, bringing seasonal totals to near normal in some areas on the North Coast, the water supply outlook for the rest of the State at the onset of the winter quarter remained bleak.

And then the rains came! In mid-December, the high-pressure ridge that had persisted off the California coast since November 1975 was dislodged, and the long-awaited storms swept across parched California. Heavy rains fell in the valley and foothill areas, and deep snows blanketed the mountains. Particularly heavy rains occurred in portions of Southern California, where 102 to 152 mm (4 to 6 in.) fell in a four-day period, causing wind and rain damage and numerous mudslides. By the end of December, rainfall in all of California was above or near normal, and storage in the 143 major reservoirs had risen to 50 percent of the 10-year average. The drought cycle was beginning to weaken.

Steady rains in lighter amounts continued for the first twenty days of January 1978, raising seasonal totals to considerably above normal; yet, because of the extremely parched condition of the soils, runoff was not proportionate. Three of the fixed weirs on the Sacramento River, however, overflowed for the first time since 1975, and local flooding occurred in many communities from Tehama on the Upper Sacramento River to San Diego.

From January 20 through February 5, California welcomed some relief from the drenching. Then, on February 6, the downpour began again for another ten days, resulting in swollen rivers, flood stages, mudslides, and loss of life. Southern California suffered significant damage.

Another onslaught of storms hit the State during the final days of February and extended well into March. Again, the major impact of the storms was felt in Southern California, where persistent torrential rains triggered more mudslides and floodflows.

By March 8, 1978, thirteen counties were declared federal disaster areas. Kern, Kings, Los Angeles, Monterey, Orange, Riverside, San Bernardino, Santa Barbara, Tulare, Ventura, Inyo, San Diego, and San Luis Obispo became eligible for financial assistance under the Disaster Relief Act of 1974, Public Law 93-288.

The wet weather pattern continued through April, extending the string of consecutive months of well-above-normal precipitation to five. On May 1, the California Cooperative Snow Surveys reported seasonal statewide precipitation to that date at 155 percent of normal and major reservoir storage at 105 percent of the 10-year average (twice the amount of the previous year). Californians were now assured of ample water supplies for the remainder of 1978.

A summary of events within pertinent hydrographic areas follows:

North Coastal Hydrographic Area

Four significant storms affected this area during the 1977-78 water year: November 22-26, December 15, January 6-20, and February 3-14. The impact of the first major storm of the season during late November was confined primarily to the Smith River Basin. Later weather fronts, December-February, tracked further south, generating flood and warning stages on most rivers and streams; however, flood damage throughout the area was minimal.

San Francisco Bay Hydrographic Area

On January 16 the crest of the Napa River at St. Helena rose to 1.0 m (3.2 ft.) above the flood stage, but damage at St. Helena was limited to levee erosion. By the time the waters reached Napa, the flows were below warning stages.

Later in the month, a combination of high tides and high flows caused levee breaches on the Napa River in Vallejo. Water spread over an area of about 5.2 km^2 (2 $mi.^2$), and some houses and mobile homes were flooded.

Central Coastal Hydrographic Area

The Salinas River rose above flood stage five times between January 16 and March 5. On January 10 it crested at 5.67 m (18.6 ft.) at Bradley, with a discharge of 2 000 m^3/s (70,600 $ft.^3/s$). The flood stage at Bradley is 3.35 m (11.0 ft.). Although flood control was provided by both the Nacimiento and San Antonio dams, high flows inundated about 8 100 ha (20,000 ac.) of farmland along the Salinas River. Damage from this flooding, though not as great as the 1969 flood, was estimated at $7 million.

During this period, numerous roads were closed, and the Carmel River channel was heavily eroded.

Central Valley Hydrographic Area

Sacramento River Basin

From January 8 to 19, a number of mobile homes located in the Sacramento River flood plain between Red Bluff and Vina had to be evacuated. During this same period, a number of additional flood-related incidents took place in the Sacramento River Basin.

A levee failed on the southwest side of Grizzly Island in the Delta, but little damage resulted because the island primarily comprises marshlands used by hunting clubs. In another portion of the Delta, Department of Water Resources crews were sent to Veale Tract to contend with flooding that resulted from high tides and heavy rainfall runoff.

Department of Water Resources crews also placed canvas on 700 metres (2,300 feet) of levee slope in the Cache Creek Settling Basin to retard wavewash erosion. During this period, high flows damaged a levee on Murphy Slough in Maintenance Area 15, southwest of Chico, to the extent that repairs required 7 600 m^3 (10,000 $yd.^3$) of earth and 180 tonne (200 tons) of rock.

In February, high winds and high tides threatened to overtop Bradford Island levees in the Sacramento-San Joaquin Delta. Crews from the Forestry Conservation Camp, directed by DWR personnel, sandbagged low spots on the levees to protect the island from flooding.

From March 4 through March 19, the fixed weirs on the Sacramento River overflowed continuously, inundating prime agricultural lands; however, these flows had little effect on planting programs.

San Joaquin River Basin

Between February 1 and May 31, 4 300 000 cubic dekametres (3,500,000 acre-feet), or 198 percent of normal flows, passed through the lower San Joaquin River. In an effort to reduce the flows, local water agencies diverted as much water as possible for preirrigation and ground water recharge. The U. S. Bureau of Reclamation delivered Friant Dam water to contractors along the Friant-Kern Canal and the Madera Canal, much of which was recharged to ground water. Additional water was diverted to the Madera Canal and released down the Chowchilla River, Ash Slough, and Berenda Slough to recharge the ground water through these permeable channels.

In spite of these efforts, the San Joaquin River at Newman reached or exceeded the warning stage of 19.2 metres (63.0 feet) from February 15 through February 19; March 9 through March 14; and April 4 through May 11. The San Joaquin River flows were above the warning stage at Vernalis from April 8 through May 15. During this last period, the river flow fluctuated from 680 cubic metres per second (24,000 $ft.^3/s$) to near 1 080 m^3/s (38,000 $ft.^3/s$), and trailer parks and resort areas located within the flood plain near Vernalis, Mossdale, and Maze Road Bridge were evacuated.

By May 1, the high flows of 140 m^3/s (4,900 $ft.^3/s$) in Kings River North that were being diverted away from Tulare Lake were rapidly eroding the right bank levee at points 10.5 to 12 kilometres (6.5 to 7.5 miles) downstream from Crescent Weir. The Kings River Conservation District rushed 2 700 tonne (3,000 ton) of concrete rubble to the erosion sites, and on May 3 the Department of Water Resources declared a preemergency and assigned trained personnel to assist in patrolling the levee. By May 4, the U. S. Corps of Engineers began placing rock revetment along the damage area, and, by May 15, seven sites had been revetted with 6 350 tonne (7,000 ton) of rock. The 24-hour levee patrolling program initiated on May 2 was terminated.

Tulare Lake Basin

This season's rainfall on the Tulare Lake bed area was about 381 millimetres (15 inches), or double the normal amount. This caused exceptionally heavy local runoff to the low portion of the Lake, and by mid-March more than 16 000 hectares (41,000 acres) were inundated to an average depth of 0.6 metres (2 feet). Much of this water was runoff from Deer Creek, Poso Creek, Avenal Gap, and the White River.

With the Kings, Kaweah, Tule and Kern Rivers promising continued heavy flows, several methods were devised to stop or effectively prevent their flows from reaching the lakebed, as described in the following paragraphs.

Kings River Flows

Kings River flows were diverted to Kings River North (Fresno Slough) and into the San Joaquin River. Also, between March 29 and April 11, 1978, 20 temporary pumps installed at weirs along Kings River South moved 3 200 cubic dekametres (2,600 ac.-ft.) of water north (upstream) from Tulare Lake and into Fresno Slough.

Kaweah River Flows

To the extent possible, the 1 200 kilometres (750 miles) of rivers, streams, and canals within the Kaweah River system were used to impound water enabling considerable amounts to percolate into ground water aquifers. In addition, water was taken from the river and spread over 2 000 hectares (5,000 acres) of percolation basins. An additional 11 200 dam^3 (9,100 ac.-ft.) was pumped into the Friant-Kern Canal and released into the Kern River. In spite of this, 20 900 dam^3 (17,000 ac.-ft.) of unwanted water made its way to Tulare Lake through the Kaweah River system during February through May.

Tule River Flows

Facilities to make use of the runoff of the Tule River have been extensively developed. This development made it possible to disperse much of the heavy flows for preseason irrigation of permanent crops, such as orchards and vineyards. Also, check

dams were installed at several locations on the river to increase the holding capacity of the existing channel. This permitted much of the floodwater to percolate into the ground. As a result of these efforts, only 9 500 dam^3 (7,700 ac.-ft.) of excess water flowed to the lake during the February through May period.

Kern River Flows

Kern River water that escaped being used for irrigation or recharged to ground water eventually reached the sedimentation basin at the inlet to the Kern River-California Aqueduct Intertie. The Intertie was constructed by the U. S. Army Corps of Engineers in 1976 to allow Kern River floodflows to enter the California Aqueduct for delivery to other areas, instead of flooding land in the Tulare Basin. At the sedimentation basin, some water was directed south to Buena Vista Lake; some north toward Tulare Lake; and then, on April 6, the Department of Water Resources opened the gates to the Intertie for the first time since its construction in 1976 and let Kern River waters flow into the California Aqueduct.

Once reaching the Aqueduct, the water was routed both southward to Southern California and northward to other service areas. Six pumps were installed at Check 25 in the California Aqueduct north of the Kern River Intertie. The pumps had a capacity of 13.3 m^3/s (470 feet $^3/s$) and routed water northward in the Aqueduct to irrigate lands in the Lost Hills Water District and the Buena Vista Water Service District. The pumps were used during the period May 5 to May 26, diverting a total of 2 200 dam^3 (18,000 ac.-ft.) of Kern River water away from the Tulare Lakebed. During April, May, and June, a total of 220 000 dam^3 (178,000 ac.-ft.) of Kern River water entered the Aqueduct through the Intertie.

Southern California

Between mid-December 1977 and mid-March 1978, an unusually persistent series of storms moved into California from the west and southwest, bringing near-record rainfall and major flows to numerous streams in Southern California. A few streams in San Diego and San Luis Obispo County had their greatest discharge of the season during mid-January, but most peak flows in the area occurred about February 10 and March 4 and 5.

Probably the most serious effects of this series of storms were the numerous landslides, mudslides, and mudflows that resulted from the total saturation of the ground by the extraordinary accumulation of rainfall. In addition to extensive property damage, other damage not evaluated in monetary terms occurred. The deaths of 20 persons can be attributed directly to the flooding, and many other persons suffered hardship and physical injury.

The destruction or damage of numerous hillside and canyon homes -- many of them very expensive -- followed the ground saturation and, on several occasions, the mud and landslides blocked major highways, causing long traffic delays. To confound the problems,

communication and power service were frequently disrupted at inopportune times.

Numerous streams throughout the southern portion of the State during and following the torrential downpours encroached or exceeded their carrying capabilities, prompting the evacuation of homes and businesses in low-lying urban and rural areas. Widespread street flooding occurred where drainage systems failed or were not adequate to accommodate the excessive volumes of runoff.

The unusual persistence of the storms made it difficult to relate damage to specific storms. The earlier December and January rains primed the soils and contributed to the increased ground saturation and fast-moving runoff generated by the more intensive storms of February and March. Furthermore, in some cases it was difficult to separate damage caused by floods and that caused by the movement of mud. The total damage in Southern California from February and March floods, not including wind damage, coastal wave action, mudslides or flooding in undeveloped canyon areas and isolated agricultural areas, is estimated at $86 million.

The flood events of 1977-78 in specific areas of Southern California follow.

Ventura County

The heaviest impact of the January-March storm was in the Santa Clara River Basin along Sespe Creek; however, other areas, including isolated residential and agricultural tracts, suffered substantial material losses and much inconvenience. The total flood damage sustained in Ventura County, primarily during February and March, was estimated to be $20 million.

Ventura River

The heaviest damage to property along the Ventura River and its tributaries occurred at Ojai, Live Oak Acres, Casitas Springs, and Matilija Dam and vicinity.

At Live Oak on March 4, approximately 26 residential and business buildings were inundated from .30 to 1.5 metres (1 to 5 feet). Some homes, in addition to water damage, lost from 3 to 12 metres (10 to 40 ft.) of property along the river embankment. The effect of the flooding in residential areas was minimized by individual floodfighting efforts, which included sandbagging and elevating home furnishings. Roads, bridges, railroads, and utility structures, however, felt the full impact of the flooding, and the cost of repairing or replacing the facilities was substantial.

In the Matilija Canyon Area, rushing waters damaged parks and ripped out roads and main power lines that served scattered homes in the canyon area. Some homes were damaged, and the severe impact of utility damage was experienced through the loss of service. Another effect of the flooding was the forced closure

of all four lanes of the Main Street Bridge in the City of Ventura. The bridge was not serviceable for two months. The damage to Ventura River drainage areas exceeded $3.5 million.

Santa Clara River

Flows in the Santa Clara River within Ventura County were generally contained within the channel during the February-March storm. Heavy losses, however, were reported within the flood plain, where dozens of acres of prime agricultural land were washed away, and extensive repairs were required to restore eroded roads, levees, bridges, and utility structures. Unharvested crops were also destroyed as turbulent water washed away the plants or exposed the root system. Prolonged saturation of the soil caused extensive root decay.

Piru Creek

Erosive channel flows during the February and March storms damaged highways and bridge abutments and blocked access to the community of Piru, imposing temporary hardships on some of the residents. The cost of restoring the facilities was estimated at $1 million.

Sespe Creek

On March 4, severe thunderstorms caused the most damaging flooding on record for Sespe Creek. The evacuation of two residential subdivisions became necessary when Sespe Creek overflowed its banks. Two hundred and four homes and two apartment buildings were inundated to depths of 0.6 to 1.5 metres (2-5 feet) in the Serenos Tract, and eleven business firms suffered substantial losses. Overtopping of the east bank permitted the uncontrolled water to stream through undeveloped land and orange groves; in its course, the floodwater also washed out roads, bridges, and railroad beds, and deposited heavy amounts of silt and debris in industrial and agricultural areas. Access to the city by auto was impossible for several days, necessitating the use of helicopters to move people and supplies during the emergency.

Damage estimates in this flood-stricken area exceeded $6 million. One life was lost.

Santa Paula Creek

Santa Paula Creek was generally contained within the channels during the high waters of February and March. This is possibly attributable to the channelization and levee work performed in Santa Paula Creek by the Ventura County Flood Control District in early February in anticipation of continued rains and flooding in the Fillmore-Santa Paula areas. The U. S. Army Corps of Engineers conducted floodfight activities during both the February and March storms, and the damage was generally limited to erosion.

Orange County

The February and March storms caused significant damage in the Santa Ana River and a tributary, Santiago Creek. Most damage was attributable to erosive flows in channels, which damaged roads, bridges, utility lines, parks, and the channels themselves. Apartments and a few businesses were damaged on Fullerton Creek, and Caspers Park was heavily eroded by flows through San Juan and Bell Canyon Creeks.

Flood damage for the County totaled $8.7 million; over half of this amount was damage to flood control works, channels, and streams.

San Diego County

The February and March rains caused flood damage to business and industry within the county. Highways, bridges, and railroads, as well as utilities, residences, public properties, flood control works, and channels also suffered. Flood damage in the county totaled about $12 million.

San Diego River Drainage Areas

The upper San Diego River Valley and Mission Valley reaches experienced flooding and flood damage.

Mission Valley, a reach extending about 16 kilometres (10 miles) upstream from Mission Bay, experienced recurrent flooding during February and March. All roadway dip crossings in Mission Valley were intermittently flooded and closed to traffic. In spite of precautions taken to barricade and close flooded and washed out roads, two people died trying to cross the river at Mission Center Road.

Fifteen businesses in Mission Valley suffered flood damage, including one car-leasing firm and two new-car vehicle storage lots where parked automobiles were innundated by up to 1.5 metres (5 feet) of water.

San Vicente Creek flooded when San Vicente Dam overtopped and caused damage estimated at $1.88 million. Peak flows below the dam, as the result of heavy rains on March 4, were estimated to be 57 m^3/s (2,000 $ft.^3/s$). Nearly 100 residences, as well as 57 business firms, were damaged.

San Luis Rey River Drainage Areas

Damage from the flooding of the San Luis Rey River and its tributaries occurred to private residences, roads, waterlines, and sewerlines. The industrial park in the flood plain northeast of Oceanside suffered damage estimated at $2.4 million.

Ostrich Creek, a San Luis Rey River tributary, flooded in March, washing out sewer and waterlines and damaging 29 homes and 15 businesses.

Los Angeles County

The February and March storms caused damage throughout the canyon areas of the San Gabriel Mountains, particularly at Big Tujunga and Little Tujunga Canyons, Pacoima Wash, and extended up to the Santa Clarita Valley. Most of the damage occurring during these storms was from erosive flows in channels, which damaged roads, parks, channels, and flood control works. Flood damage within the County totaled $34.5 million, including almost $32 million for the repair of flood control works and channels and streams.

Los Angeles River Drainage Areas

Damage to the Los Angeles River drainage area was $18.5 million, including more than $17.8 million in damage to flood control structures, reservoirs, channels, and streams. Some $17.1 million of this amount was needed to remove debris (much of which consisted of large boulders) from about 60 debris basins and 10 reservoirs.

Oak Street Drain, a downstream tributary to Temescal Wash, flooded part of Corona in January and again on February 10, 1978. Burned-off upstream watershed vegetation from 1977 fires was a contributing factor to the flooding, which caused damage to mobile home parks in the vicinity of 6th Street on February 10. One hundred and twenty-six trailers were involved. Two mobile home parks were evacuated, and one woman died of a heart attack during the evacuation. Further downstream, twelve businesses were flooded and had to remain closed for up to a week. Oak Street Drain floodwaters poured over the top of the Riverside Freeway, which was closed for several hours while crews attempted to repair the damage. Silt and debris damage was widespread. Damage from the Oak Street Drain flooding amounted to about $1.2 million.

San Bernardino County

The February and March 1978 flooding did not reach the levels experienced in 1969 when the worst floods in the County's history were recorded. However, damage to channels, roads, bridges, railroads, and utilities in the Santa Ana and Mojave River drainage areas was estimated at $5.2 million.

On Lytle Creek, one home was completely destroyed by floodwaters, and twelve other homes were damaged. Also, water flowed through five homes in Rancho Cucamonga when Cucamonga Creek left its course in the vicinity of 19th Street because debris clogged the channel.

Santa Barbara County

Silt buildup and erosion in channels and streams accounted for the heaviest flood-related damage within the County, especially in the Santa Maria River and South Coastal streams drainage area.

Agricultural damage occurred as streams meandered from their channels at numerous locations and eroded and deposited silt over hundreds of acres of farmland.

In February, half a dozen buildings in the mountain community of Hidden Springs were washed away by a wave that one resident reported as 9 metres (30 feet) high. In addition to exceptional debris damage, many roads, some bridges, railroad appurtenances, water systems, and homes were damaged. One death occurred when a man left his home to check his corral. He was not seen again.

San Gabriel River Drainage Area

As in the Los Angeles River drainage area, the greatest damage, $13.3 million, was to flood control structures, channels, and streams. Total flood-related damage in the San Gabriel River drainage area was $13.5 million. Again, and by far the greatest expense, $13.0 million was for removing debris from reservoirs, debris basins, and spreading basins.

Riverside County

Flood damage totaling about $9 million occurred in the Santa Ana River, the Santa Margarita River, and the Whitewater River drainage areas.

The main damage along the Santa Ana River from the February and March flooding was to water works, wells, pumps, and rail lines. Also, agricultural lands within the Prado Flood Control Basin were subjected to high and prolonged water levels.

On March 4, while cleanup operations from previous floodings were still in progress, the worst flooding of the season occurred on Temescal Wash in the vicinity of Corona. Using boards and sandbags, more than 60 people struggled to reinforce a levee before conditions became so dangerous the effort had to be abandoned. The rushing waters poured through the embankment, flooding a trailer park and 20 business establishments to depths of up to 1.2 metres (4 feet). The overflow continued downstream to damage roads, wash out railroad tracks, and spill silt over a wide area. Damage from this flooding approached $2 million.

Costs of repairs to highways, bridges, and railroads were especially high in the Santa Ynez River drainage areas.

San Luis Obispo County

Only minor damage was reported from residential flooding within the county. A number of roads were flooded, and erosion and sedimentation damage occurred, especially along the lower end of Arroyo Grande Creek. However, by far the heaviest damage was to roads and bridges along the Cuyama River where losses exceeded $10 million.

River Finds A New Way To The Sea

Muddy water and debris — not cars — moved through the parking lot at San Diego Stadium yesterday, deposited by the rampaging San Diego River

This aerial photo shows a partially submerged Mission Valley from Penney's in Fashion Valley west to the ocean. More than 2½ inches of rain fell during the night and morning hours, contributing to flooding which claimed the lives of a San Diego couple on their way to Mass

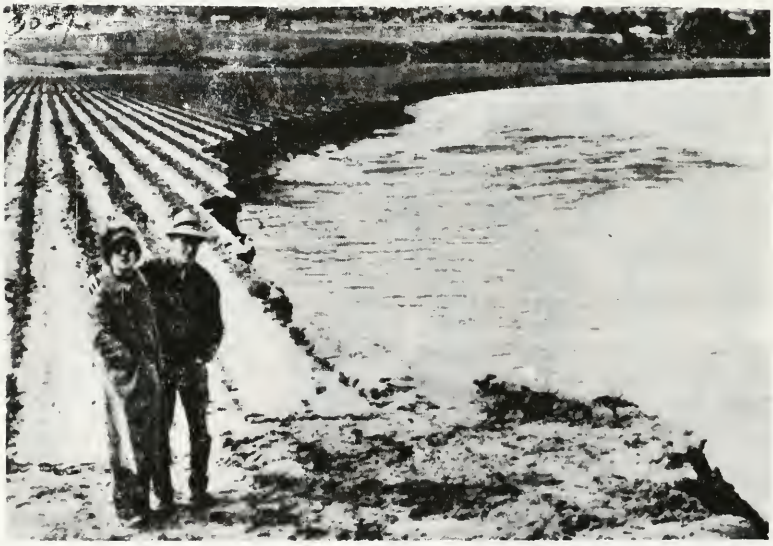
Two unidentified men, adrift on a sea that was formerly the Stardust Hotel golf course, cling to a car until rescuers arrive. Several motorists who unwittingly tried to brave the waters found themselves stranded — or swimming

Three young girls, pant legs rolled knee-high in a vain attempt to keep their clothes dry, survey the dismal scene to the Fashion Valley parking lot from their own private little island. Access to the center was Friars Road only

Staff Photos
By Tony Doubek and Jerry Rife

WIPED OUT—Mud and debris are all that are left of what was once a residential section of Hidden Springs resort community.

Survivors at Hidden Springs Tell How Families Perished



AP Laserphoto

Mrs. Ray Filippi stand in what remains of their 75-acre broccoli ranch. Fifty acres of the field were flooded by the normally dry Salinas River, which also carved away a mature eucalyptus orchard. Officials estimate the river has damaged 20,000 acres.

FIGURE 12. NORTHERN CALIFORNIA REFERENCE MAP FOR HYDROGRAPHS, FIGURES 13-16

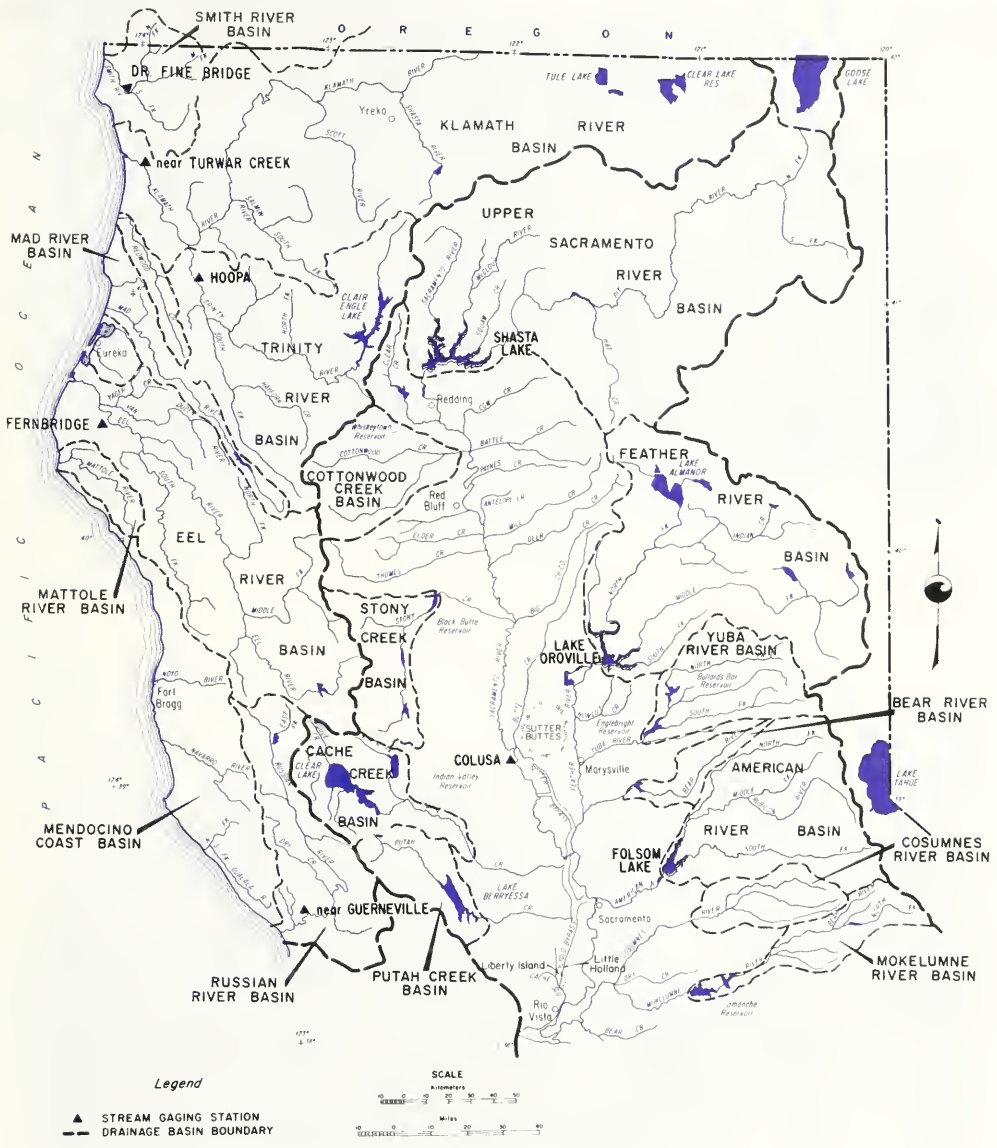
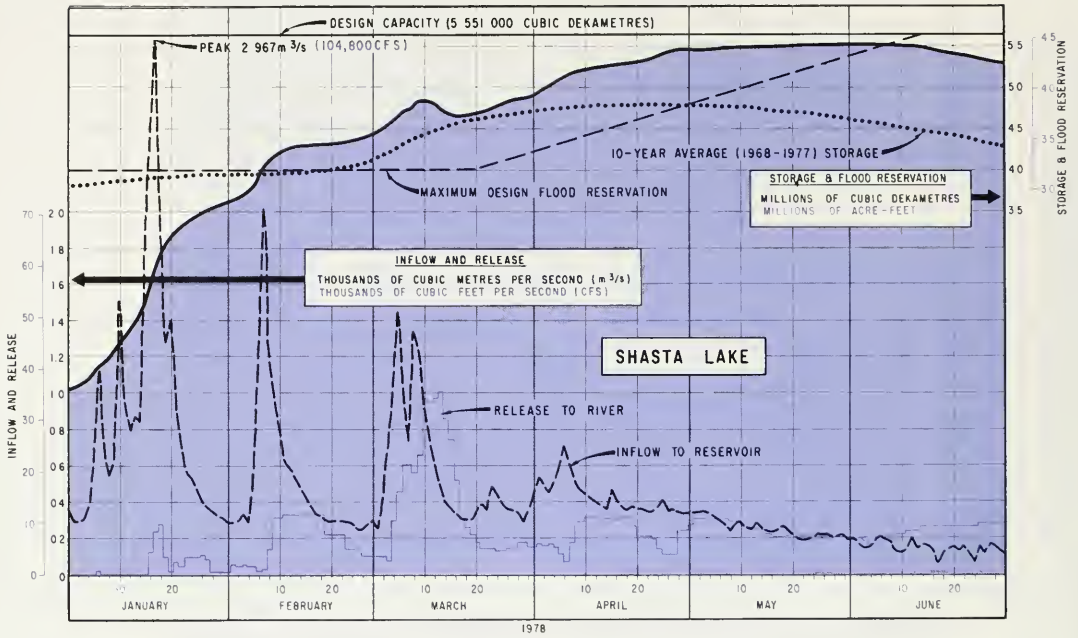


FIGURE 13. HYDROGRAPHS OF SHASTA LAKE AND SACRAMENTO RIVER



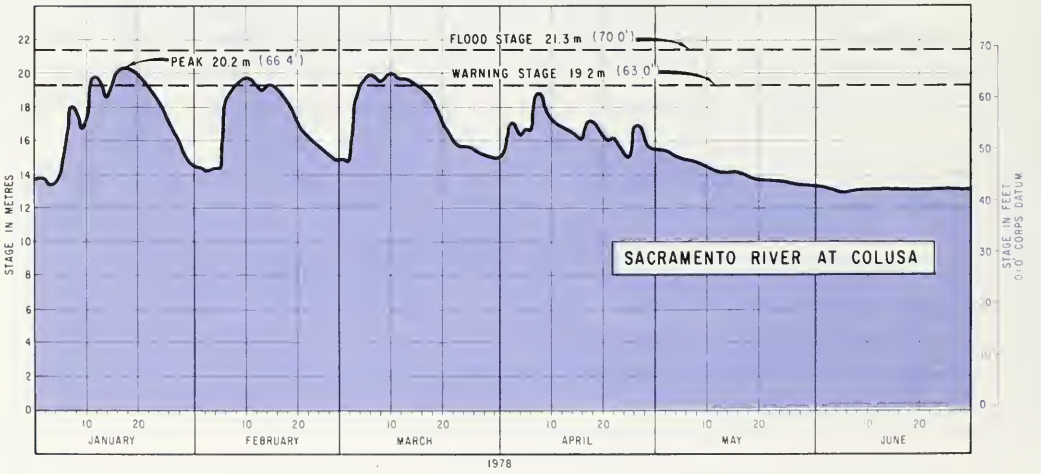


FIGURE 14. HYDROGRAPHS OF LAKE OROVILLE AND FOLSOM LAKE

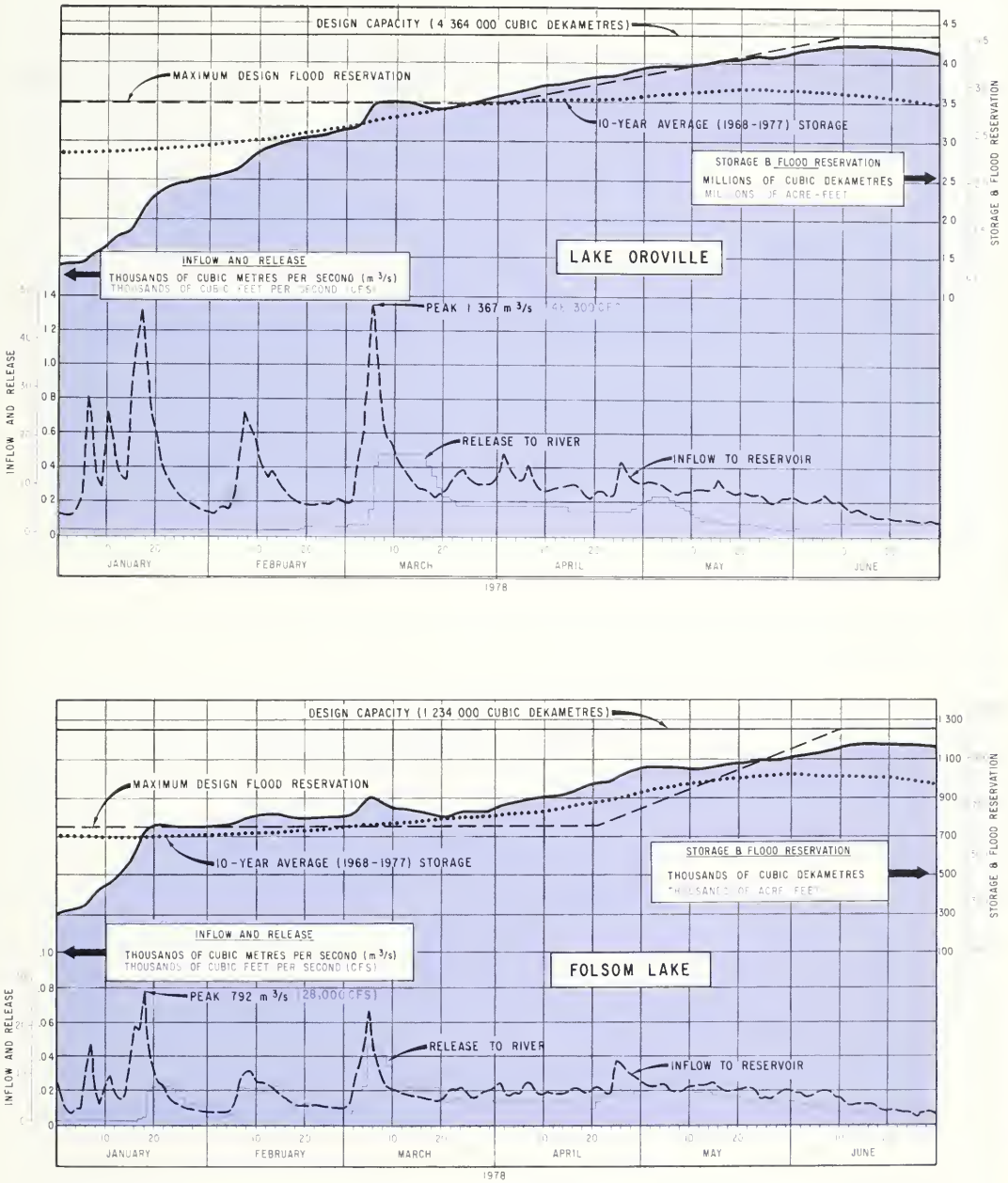
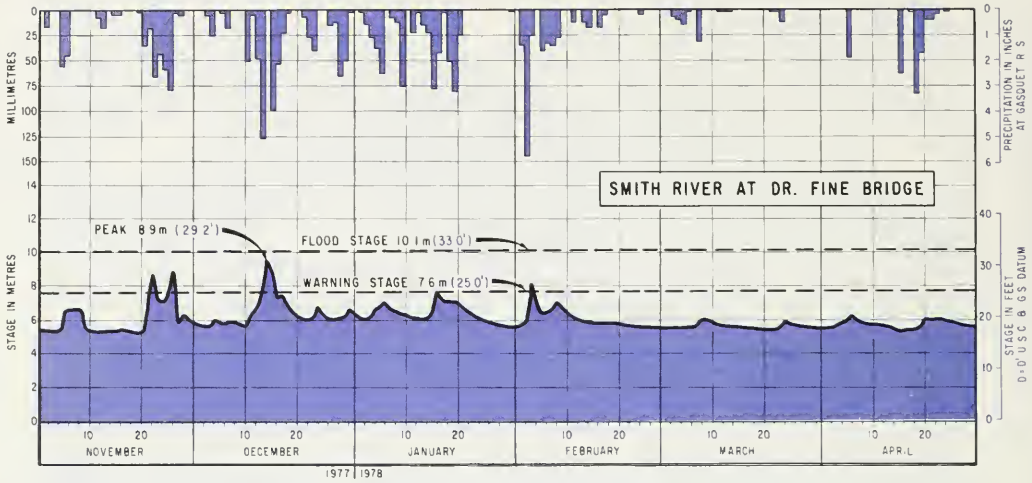


FIGURE 15. HYDROGRAPHS OF SMITH AND TRINITY RIVERS



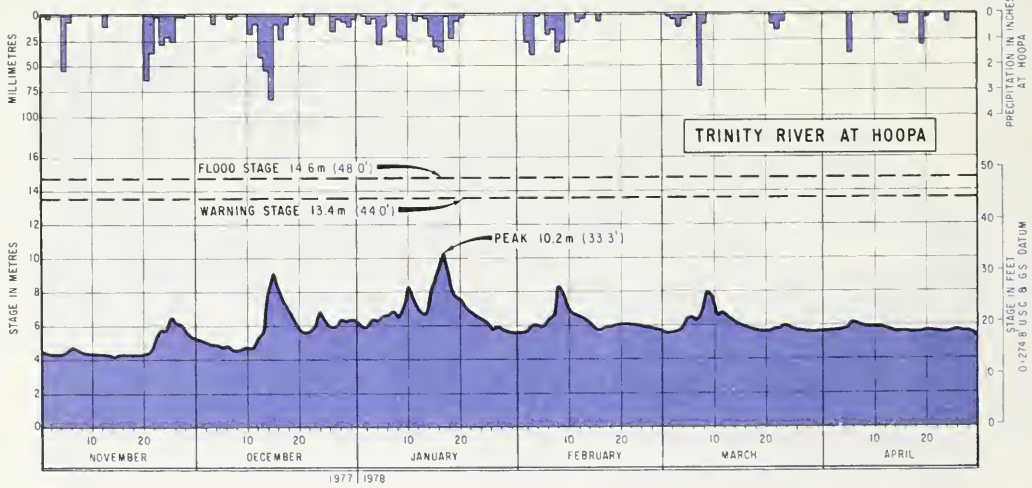
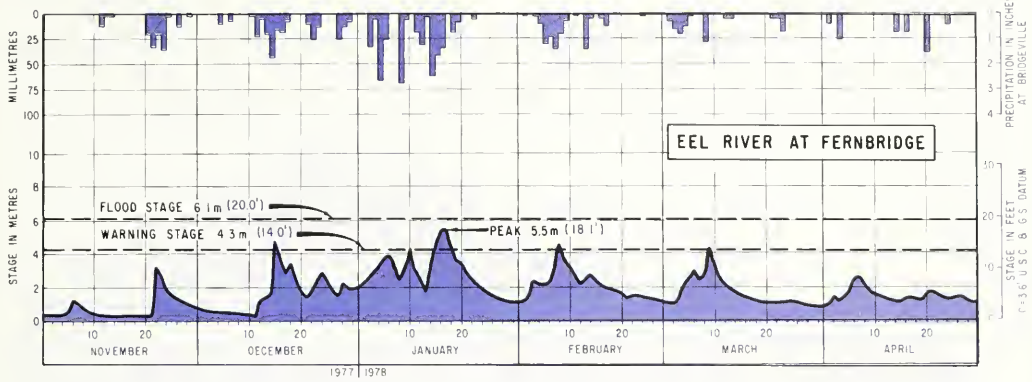


FIGURE 16. HYDROGRAPHS OF EEL AND RUSSIAN RIVERS



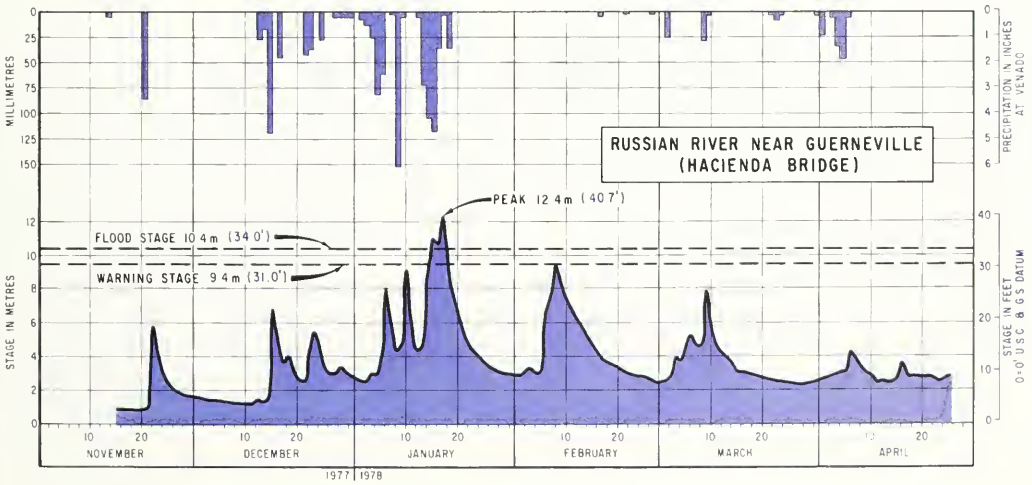
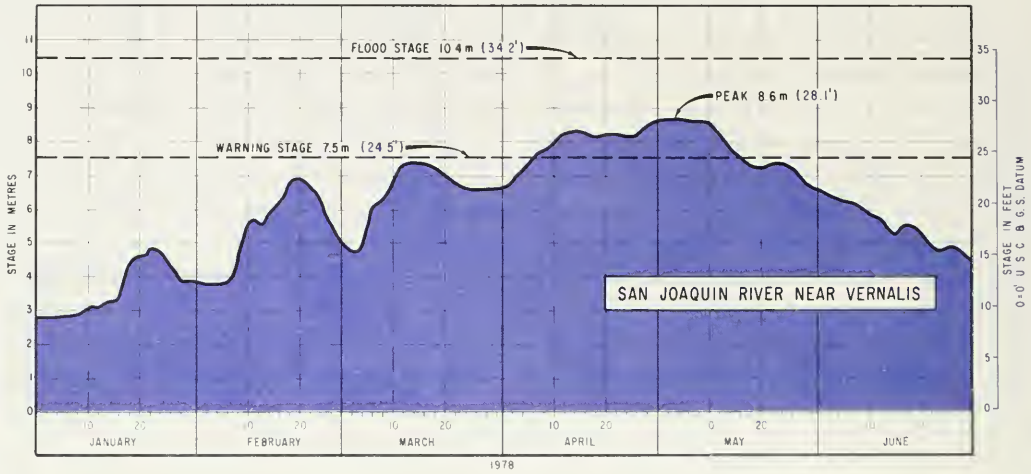
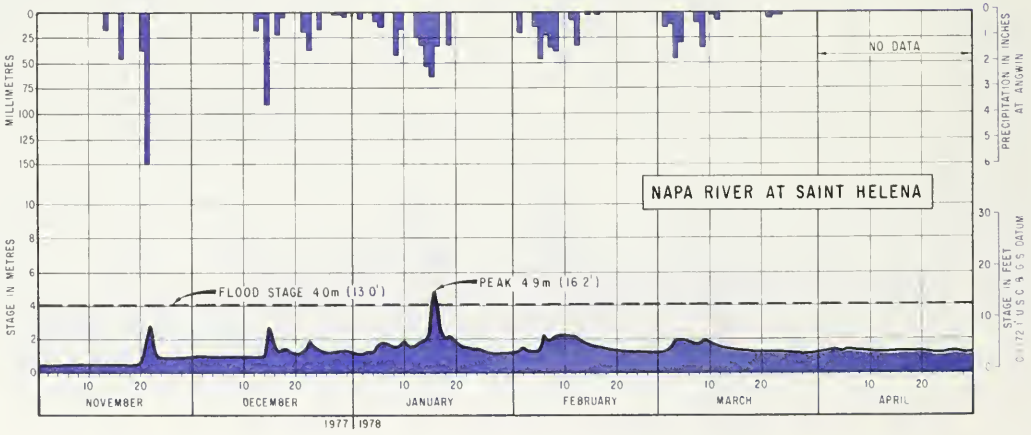


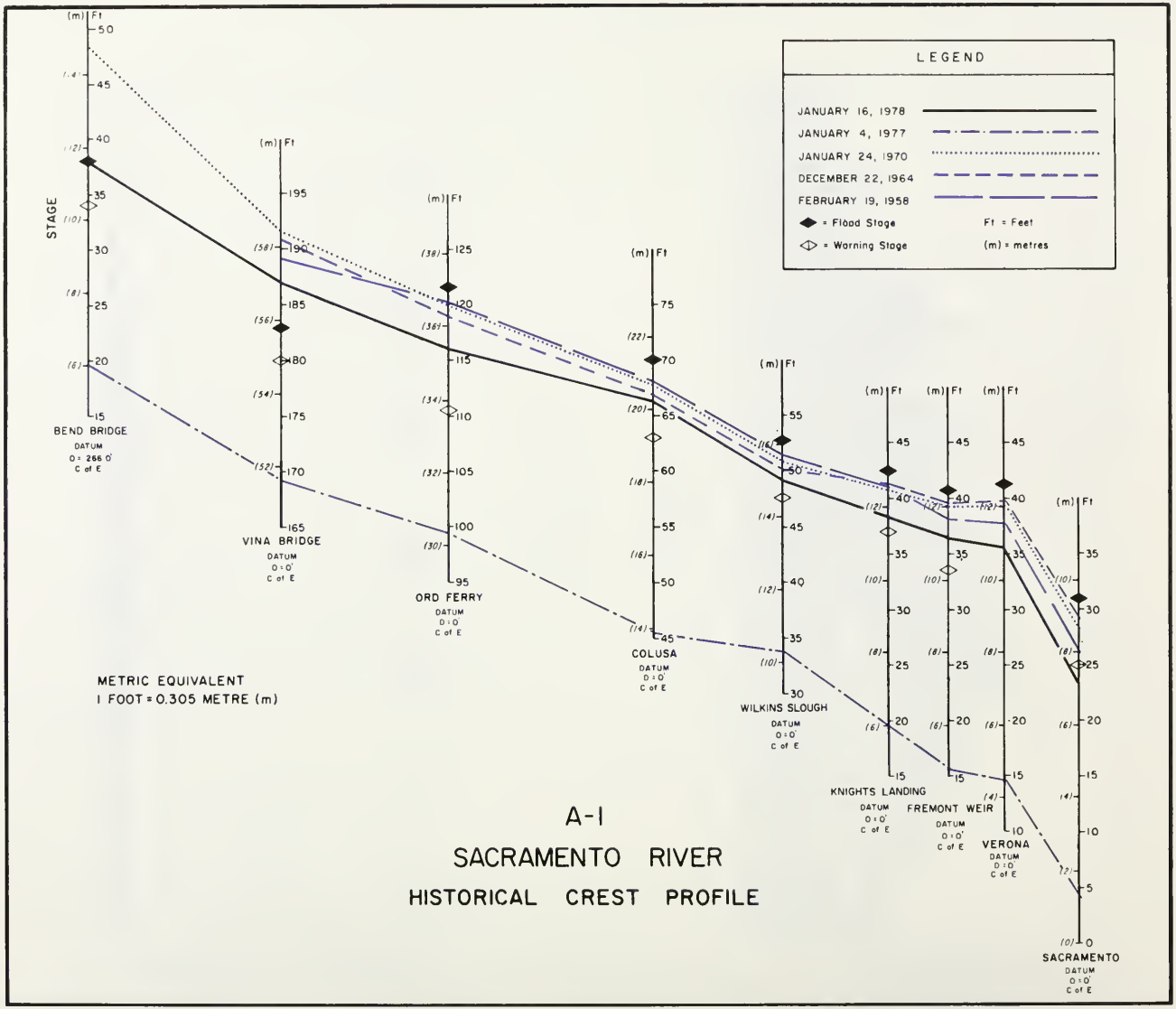
FIGURE 17. HYDROGRAPHS OF SAN JOAQUIN AND NAPA RIVERS





APPENDIX A

Sacramento River Crest
and
Weir Overflow Records

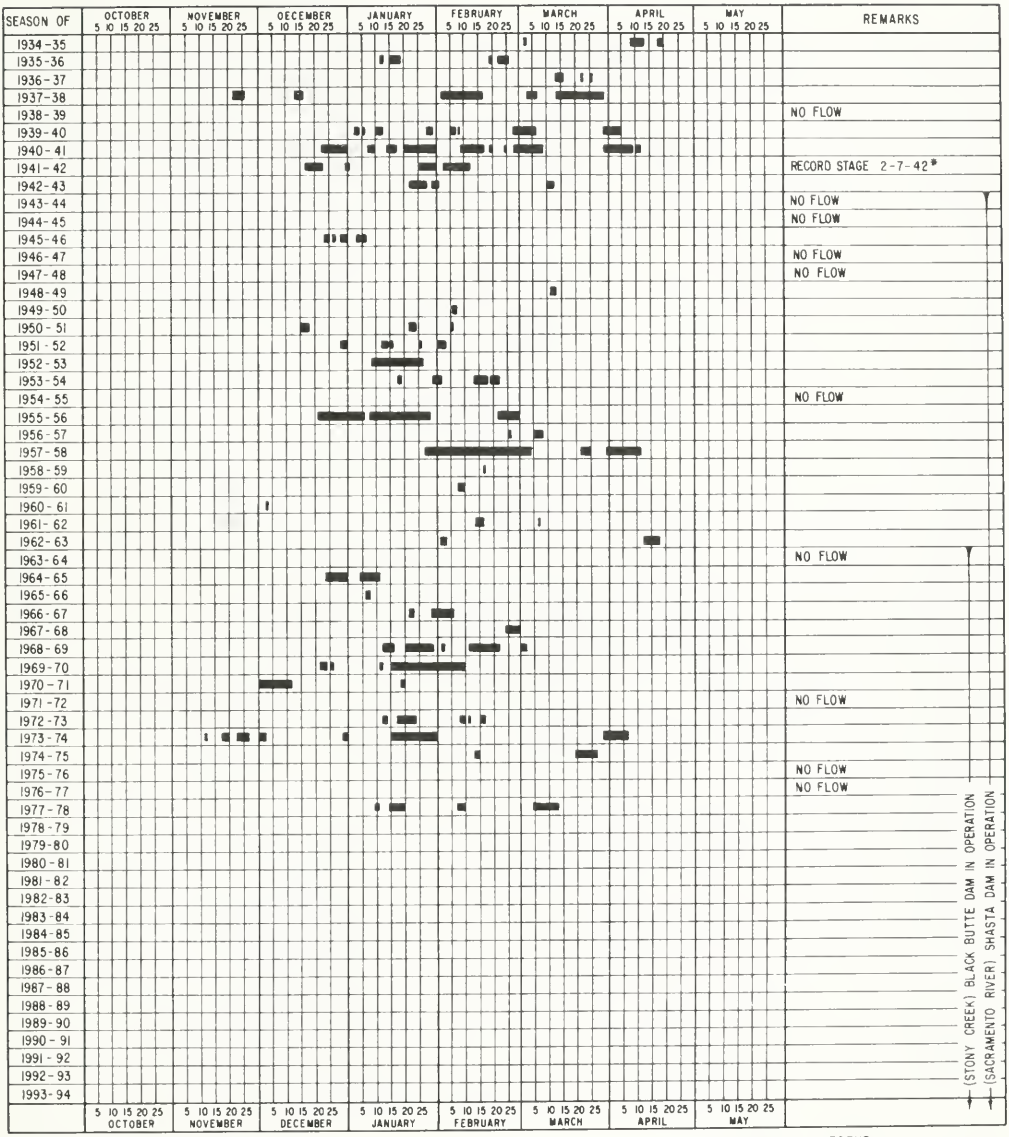


A-1

SACRAMENTO RIVER

HISTORICAL CREST PROFILE

A-2, PERIOD OF RECORD OF OVERFLOW OF THE MOULTON WEIR



NOTE:

Data compiled from records of D.W.R. stream gaging station "Sacramento River at Moulton Weir"

Datum: 0 = 0' U.S.E.D.

Period of record: 1935 to present

Crest elevation = 76.75 feet (23.41 metres)

Metric Equivalent:

1 FOOT = 0.305 METRES

LEGEND

Designates periods of flow over weir

* 83.8 feet (25.6 metres)

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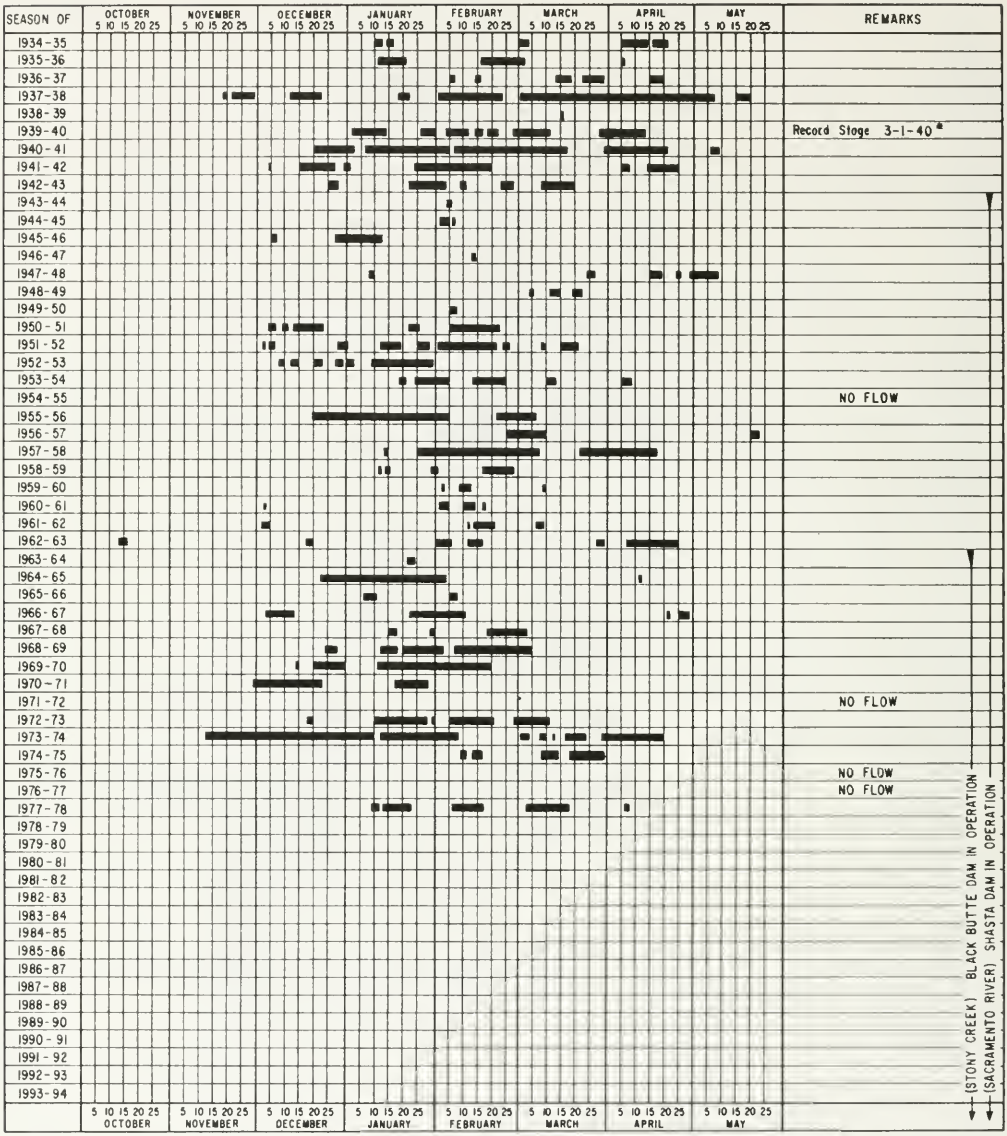
DEPARTMENT OF WATER RESOURCES

A-3, PERIOD OF RECORD OF OVERFLOW OF THE COLUSA WEIR



NOTE:

Data compiled from records of D.W.R. stream gaging station Sacramento River at Colusa Weir

Datum 0 = 0' U.S.E.D.

Period of record: 1935 to present

Crest elevation 61.80 feet (18.85 metres)

Metric Equivalent:
1 FOOT = 0.305 METRES

LEGEND

Designates periods of flow over weir

* 70.6 feet (21.5 metres)

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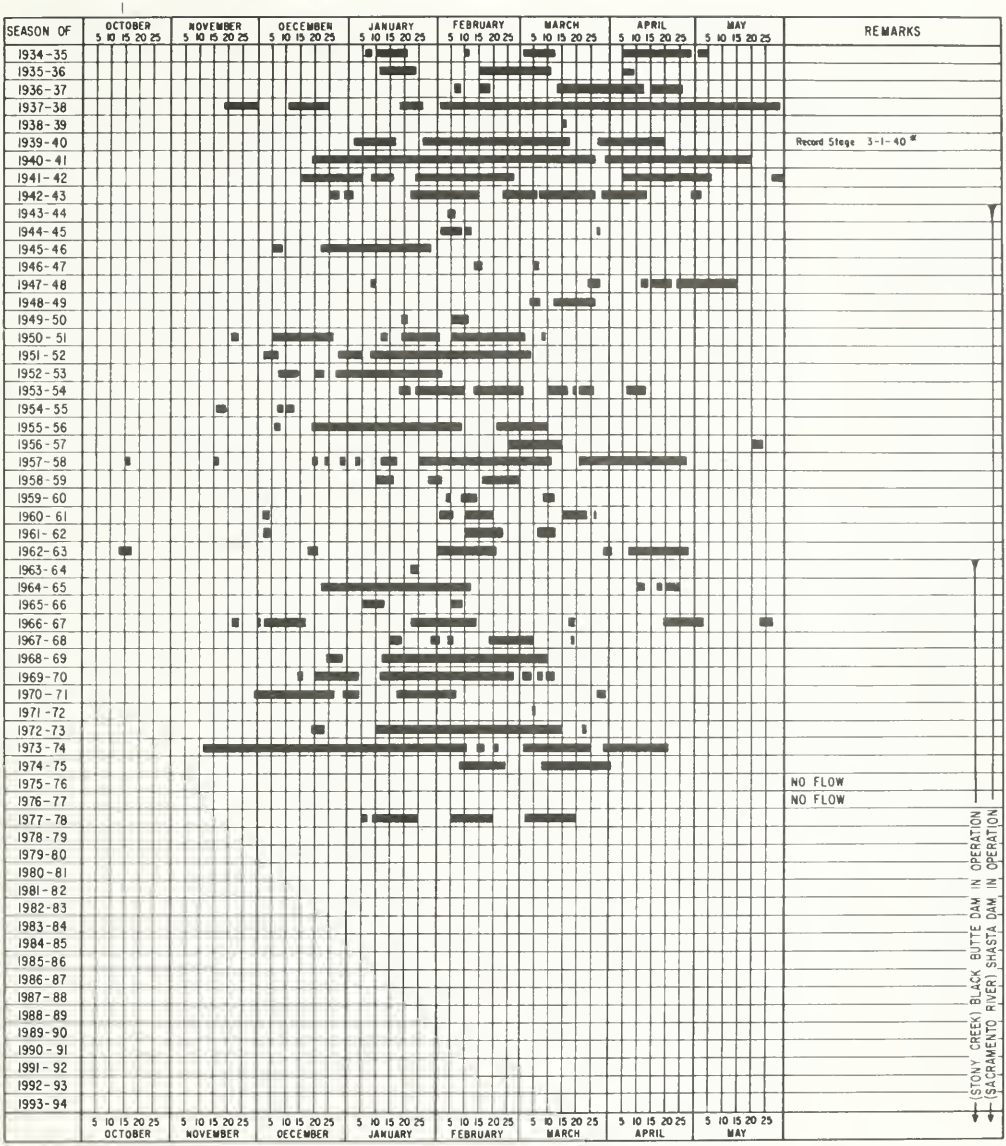
A-4, PERIOD OF RECORD OF OVERFLOW OF THE TISDALE WEIR



NOTE:

Data compiled from records of D.W.R. stream gaging station "Sacramento River at Tisdale Weir"

Datum 0=0' U.S.E.D.

Period of record: 1935 to present

Crest elevation = 45.45 feet (13.86 metres)

Metric Equivalent:

1 FOOT = 0.305 METRES

LEGEND

Designates periods of flow over weir

*53.3 feet
(16.3 metres)

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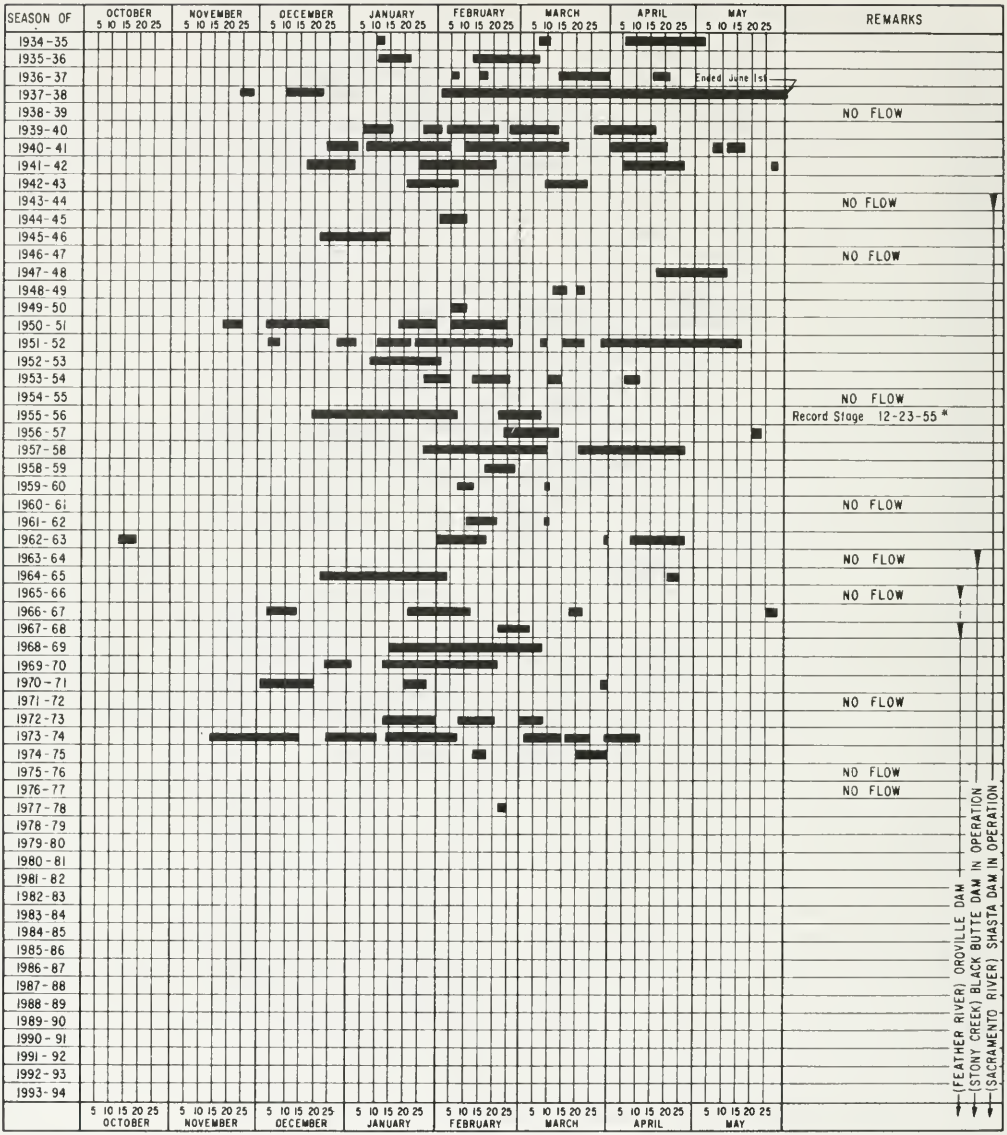
A-5, PERIOD OF RECORD OF OVERFLOW OF THE FREMONT WEIR



NOTE:

Data compiled from records of D.W.R. stream gaging station "Sacramento River at Freemont Weir, West End"

Datum: 0 = 0' U.S.E.D.

Period of record: 1934 to present

Crest elevation = 33.50 feet (10.22 metres)

Metric Equivalent:
1 FOOT = 0.305 METRES

LEGEND

Designates periods of flow over weir

* 39.7 feet
(12.1 metres)

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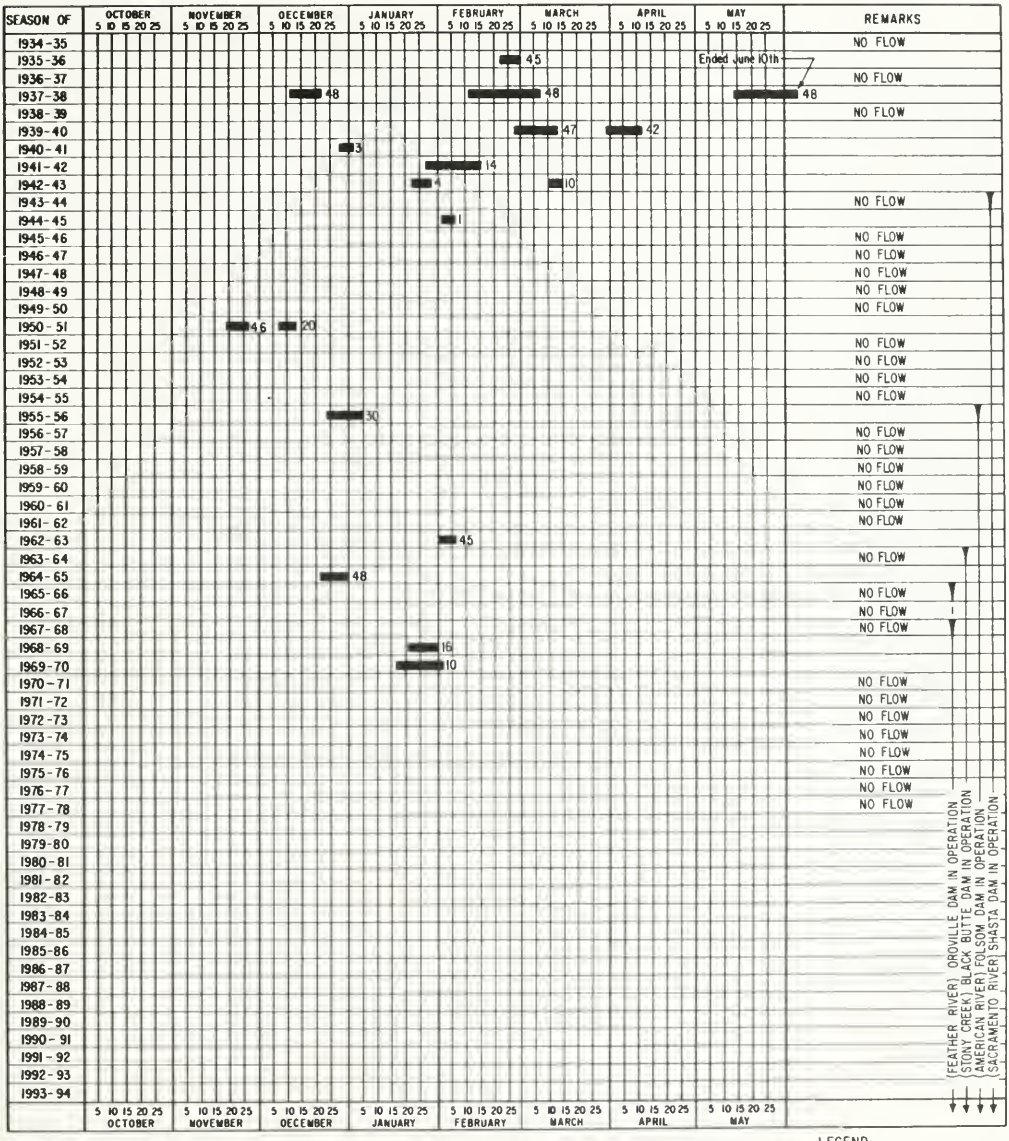
A-6, PERIOD OF RECORD OF OVERFLOW OF THE SACRAMENTO WEIR



NOTE:

Data compiled from records of D.W.R. stream gaging station "Sacramento Weir Spill to Yolo Bypass, near Sacramento

Datum: 0=0' U.S.E.O.

Period of record. 1926 to present

Crest elevation = 24.75 feet (7.55 metres)

Elevation of top of gates = 31.0 feet (9.46 metres)

Metric Equivalent:
1 FOOT = 0.305 METRES

LEGEND

5 — Designates periods of flow over weir and total number of gates opened

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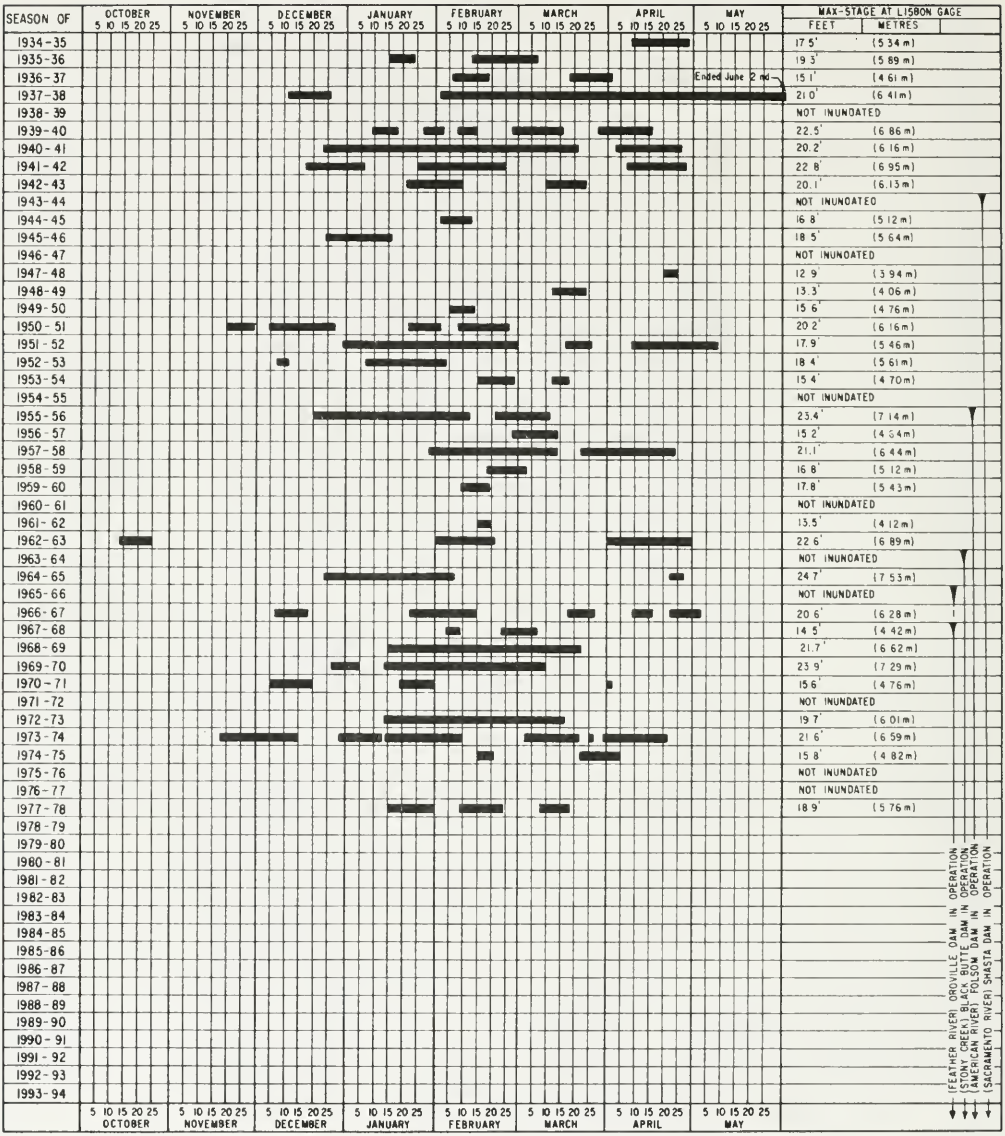
A-7, PERIOD OF RECORD OF INUNDATION OF THE YOLO BYPASS



NOTE:

Data compiled from records of D.W.R. stream gaging station "Yolo Bypass near Lisbon."

Datum: 0 = U.S.E.D. Datum

Period of Record: 1914 to Present

Assumed overflow of Bypass at stage above 11.5' (3.51 metres) on the Lisbon gage

Metric Equivalent:
1 FOOT = 0.305 METRES

LEGEND

Designates period of inundation of Bypass

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THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

APPENDIX B

Peak Flows and Stages at Selected Streams and Stations in California

INTRODUCTION

Appendix B presents data for selected stations on representative streams of the major hydrogrologic basins of California (Figure 2). Historic data are obtained from USGS Surface Water Records, Department of Water Resources' Bulletin 130, and U. S. Department of Commerce, NOAA, National Weather Service, Daily River Stage publications. Current water year data, obtained from USGS and DWR, are preliminary and are subject to revision.

Stations are listed in a downstream direction along the main stream and tributaries. Stations on tributaries are listed between main stream stations in the order in which the tributaries enter the main stream.

LEGEND FOLLOWS TABLES

PEAK FLOW AND STAGES
(METRIC UNITS)

STREAM AND STATION	DRAINAGE AREA IN SQ KM	PERIOD OF RECORD	SOURCE OF RECORD	PREVIOUS MAXIMUM OF RECORD DATE	PREVIOUS MAXIMUM OF RECORD STAGE IN METRES	PREVIOUS MAXIMUM OF RECORD DISCHARGE IN M /S	1977-1978 WATER YEAR DATE	1977-1978 WATER YEAR STAGE IN METRES	1977-1978 WATER YEAR DISCHARGE IN M /S
NORTH COASTAL AREA									
SMITH RIVER BASIN									
SMITH RIVER NEAR CRESCENT CITY	1577	1931-	USGS	12-22-64	14.8	6,460	12-14-77	10.19	2890
KLAMATH RIVER BASIN									
SHASTA RIVER NEAR YREKA	2053	1933-41 1944-	USGS	12-22-64 12-22-64	3.9 4.2(A)	608 - -	1-14-78	2.03	60
SCOTT RIVER NEAR FORT JONES	1691	1941-	USGS	12-22-64	7.7(AC)	1,550	12-14-77	4.74	376
KLAMATH RIVER NEAR SEIAD VALLEY	18078	1912-25 1951-	USGS	12-23-64	10.3(A)	4,670	12-15-77	4.50	829
SALMON RIVER AT SOMESBAR	1945	1911-15 1927-	USGS	12-22-64	14.2(A)	3,770	12-14-77	5.53	897
KLAMATH RIVER AT ORLEANS	21950	1927-	USGS	12-22-64	23.3(AC)	8,690	12-14-77	7.10	3140
TRINITY RIVER ABOVE COFFEE CREEK NEAR TRINITY CENTER	385	1957-	USGS	12-22-64 12-22-64	3.7 4.1(A)	588 - -	1-14-78	2.54	233
TRINITY RIVER AT LEWISTON	1885	1911-	USGS	12-22-55	8.3(AC)	2,030	7-24-78	1.48	21
NORTH FORK TRINITY RIVER AT MELENA	391	1911-13 1957-	USGS-DWR	12-22-64	8.5(A)	1,010	12-14-77	5.04	225
TRINITY RIVER NEAR BURNT RANCH	3726	1931-40 1956-	USGS	12-22-55	13.2(A)	4,870	1-16-78	4.66	586
TRINITY RIVER AT HOOPA	7420	1911-14 1916-18 1931-	USGS	12-22-64	12.3(AC)	6,540	1-17-78	10.16	1760
KLAMATH RIVER NEAR KLAMATH	31339	1910-26 1950-	USGS	12-23-64	16.9(A)	15,800	12-14-77	0.00	9200
REDWOOD CREEK BASIN									
REDWOOD CREEK AT ORICK	720	1911-13 1953-	USGS	12-22-64	7.3(A)	1,430	12-14-77	5.06	600
LITTLE RIVER BASIN									
LITTLE RIVER NEAR TRINIDAD	113	1955-	USGS	1-22-72 1-17-53	4.38 4.8(A)	275 - -	12-14-77	3.09	173
MAD RIVER BASIN									
MAD RIVER NEAR FOREST GLEN	370	1953-	USGS	12-22-55	7.5(A)	1,110	1-16-78	3.17	231
MAD RIVER NEAR ARCATA	1256	1910-13 1950-	USGS	12-22-55	9.1	2,200	1-17-78	4.66	620
EEL RIVER BASIN									
EEL RIVER BELOW SCOTT DAM NEAR POTTER VALLEY	751	1922-	USGS	12-22-64	7.4(A)	1,590	1-16-78	4.41	447
EEL RIVER AT VAN ARSDALE DAM NEAR POTTER VALLEY	903	1909-	USGS	12-22-64	10.3(A)	1,820	1-16-78	6.21	598
OUTLET CREEK NEAR LONGVALE	416	1956-	USGS	12-22-64	9.3(A)	2,210	12-14-77	4.61	438

PEAK FLOW AND STAGES
(ENGLISH UNITS)

STREAM AND STATION	DRAINAGE AREA IN SQ MILES	PERIOD OF RECORD	SOURCE OF RECORD	PREVIOUS MAXIMUM OF RECORD			1977-1978 WATER YEAR		
				DATE	STAGE IN FEET	DISCHARGE IN CFS	DATE	STAGE IN FEET	DISCHARGE IN CFS
NORTH COASTAL AREA									
SMITH RIVER BASIN									
SMITH RIVER NEAR CRESCENT CITY	609	1931-	USGS	12-22-64	48.5	228,000	12-14-77	33.44	102000
KLAMATH RIVER BASIN									
SHASTA RIVER NEAR YREKA	793	1933-41 1944-	USGS	12-22-64 12-22-64	12.9 13.9(A)	21,500 - -	1-14-78	6.65	2150
SCOTT RIVER NEAR FORT JONES	653	1941-	USGS	12-22-64	25.3(AC)	54,800	12-14-77	15.56	13300
KLAMATH RIVER NEAR SEIAD VALLEY	6980	1912-25 1951-	USGS	12-23-64	33.8(A)	165,000	12-15-77	14.78	29300
SALMON RIVER AT SOMESHAW	751	1911-15 1927-	USGS	12-22-64	46.6(A)	133,000	12-14-77	18.15	31700
KLAMATH RIVER AT ORLEANS	8475	1927-	USGS	12-22-64	76.5(AC)	307,000	12-14-77	23.30	111000
TRINITY RIVER ABOVE COFFEE CREEK NEAR TRINITY CENTER	149	1957-	USGS	12-22-64 12-22-64	12.3 13.4(A)	20,800 - -	1-14-78	8.32	8250
TRINITY RIVER AT LEWISTON	728	1911-	USGS	12-22-55	27.3(AC)	71,600	7-24-78	4.88	750
NORTH FORK TRINITY RIVER AT HELENA	151	1911-13 1957-	USGS-DWR	12-22-64	27.9(A)	35,800	12-14-77	16.52	8000
TRINITY RIVER NEAR HUMBOLDT RANCH	1439	1931-40 1956-	USGS	12-22-55	43.2(A)	172,000	1-16-78	15.28	20700
TRINITY RIVER AT HOOPA	2865	1911-14 1916-18 1931-	USGS	12-22-64	40.3(AC)	231,000	1-17-78	33.33	62200
KLAMATH RIVER NEAR KLAMATH	12100	1910-26 1950-	USGS	12-23-64	55.3(A)	557,000	12-14-77	0.00	325000
REDWOOD CREEK BASIN									
REDWOOD CREEK AT ORICK	278	1911-13 1953-	USGS	12-22-64	24.0(A)	50,500	12-14-77	16.60	21200
LITTLE RIVER BASIN									
LITTLE RIVER NEAR TRINIDAD	48	1955-	USGS	1-22-72 1-17-53	14.08 15.7(A)	9,720 - -	12-14-77	10.14	6150
MAD RIVER BASIN									
MAD RIVER NEAR FORREST GLEN	143	1953-	USGS	12-22-55	24.5(A)	39,200	1-16-78	10.41	8200
MAD RIVER NEAR ARCATA	485	1910-13 1950-	USGS	12-22-55	29.8	77,800	1-17-78	15.29	21900
EEL RIVER BASIN									
EEL RIVER BELOW SCOTT DAM NEAR POTTER VALLEY	290	1922-	USGS	12-22-64	24.2(A)	56,300	1-16-78	14.48	15800
EEL RIVER AT VAN ARSDALE DAM NEAR POTTER VALLEY	349	1909-	USGS	12-22-64	33.9(A)	64,100	1-16-78	20.38	21000
OUTLET CREEK NEAR LONGVALE	161	1956-	USGS	12-22-64	30.6(A)	77,900	12-14-77	15.12	15500

PEAK FLOWS AND STAGES (CONTINUED)
METRIC UNITS

STREAM AND STATION	DRAINAGE AREA IN SQ KM	PERIOD OF RECORD	SOURCE OF RECORD	PREVIOUS MAXIMUM OF RECORD			1977-1978 WATER YEAR		
				DATE	STAGE IN METRES	DISCHARGE IN M /S	DATE	STAGE IN METRES	DISCHARGE IN M /S
NORTH COASTAL AREA (CONTINUED)									
EEL RIVER BASIN (CONTINUED)									
EEL RIVER AT FORT SEWARD	5457	1955-	USGS	12-22-64	26.6(AC)	15,900	1-16-78	10.60	3200
SOUTH FORK EEL RIVER NEAR MIRANDA	1390	1939-	USGS	12-22-64	14.0(A)	5,640	1-16-78	6.79	1500
BULL CREEK NEAR WEOTT	72	1960-	USGS	12-22-64	6.3(AC)	184	12-14-77	3.31	120
EEL RIVER AT SCOTIA	8062	1910-	USGS	12-23-64	21.9(A)	21,300	1-17-78	10.81	4790
VAN DUZEN RIVER NEAR BRIDGEVILLE	574	1950-	USGS	12-22-64	7.3(A)	1,380	12-14-77	4.59	529
MATTOLE RIVER BASIN									
MATTOLE RIVER NEAR PETROLIA	622	1911-13 1915-	USGS	12-22-55	9.0(C)	2,560	12-14-77	5.87	1100
NOYO RIVER BASIN									
NOYO RIVER NEAR FORT BRAGG	274	1951-	USGS	12-22-64	8.0	679	3 -8-78	4.04	127
NAVARRO RIVER BASIN									
NAVARRO RIVER NEAR NAVARRO	784	1950-	USGS	12-22-55	12.4(C)	1,830	1-16-78	7.73	637
RUSSIAN RIVER BASIN									
RUSSIAN RIVER NEAR UKIAH	259	1911-13 1952-	USGS	12-21-55	6.4	535	12-14-77	5.65	280
EAST FORK RUSSIAN RIVER NEAR CALPELLA	238	1941-	USGS	12-22-64	6.2	529	1 -9-78	5.36	230
RUSSIAN RIVER NEAR HOPLAND	937	1939-	USGS	12-22-55 12- -37	8.2 9.1(A)	1,270 - -	1-16-78	5.25	506
RUSSIAN RIVER NEAR CLOVERDALE	1302	1951-	USGS	12-22-64	9.6(C)	1,560	1-16-78	6.04	784
RUSSIAN RIVER NEAR HEALDSBURG	2053	1939-	USGS	12-23-64 12- -37	8.2 9.4(A)	2,020 - -	1-16-78	5.88	1180
DRY CREEK NEAR CLOVERDALE	227	1941-	USGS	12-22-64	5.5	512	1-16-78	3.88	272
DRY CREEK NEAR GEYSERVILLE	419	1959-	USGS	1-31-63	5.3	917	1 -9-78	4.88	523
RUSSIAN RIVER NEAR GUERNEVILLE (HACIENDA BR.)	3471	1939-	USGS	12-23-64 12-23-55	15.1(A) 15.1(A)	2,640 - -	1-17-78	12.41	1850
SAN FRANCISCO BAY AREA									
WALKER CREEK BASIN									
WALKER CREEK NEAR TOMALES	95	1959-	USGS	1-16-73	7.0	186	1-16-78	6.00	104
CORTE MADERA CREEK BASIN									
CORTE MADERA CREEK AT ROSS	46	1951-	USGS	12-22-55	5.3	102	1-14-78	4.36	61
NOVATO CREEK BASIN									
NOVATO CREEK NEAR NOVATO	46	1946-	USGS	1-14-70	3.4	56	1-16-78	3.22	52

PEAK FLOWS AND STAGES (CONTINUED)
ENGLISH UNITS

STREAM AND STATION	DRAINAGE AREA IN SQ MILES	PERIOD OF RECORD	SOURCE OF RECORD	PREVIOUS MAXIMUM OF RECORD DATE	PREVIOUS MAXIMUM OF RECORD STAGE IN FEET	PREVIOUS MAXIMUM OF RECORD DISCHARGE IN CFS	1977-1978 WATER YEAR DATE	1977-1978 WATER YEAR STAGE IN FEET	1977-1978 WATER YEAR DISCHARGE IN CFS
NORTH COASTAL AREA (CONTINUED)									
EEL RIVER BASIN (CONTINUED)									
EEL RIVER AT FORT SEWARD	2107	1955-	USGS	12-22-64	87.2(AC)	561,000	1-16-78	34.79	113000
SOUTH FORK EEL RIVER NEAR MIRANDA	537	1939-	USGS	12-22-64	48.0(A)	199,000	1-16-78	22.29	52900
BULL CREEK NEAR WEOTT	28	1960-	USGS	12-22-64	20.6(AC)	6,520	12-14-77	10.87	4250
EEL RIVER AT SCOTIA	3113	1910-	USGS	12-23-64	72.0(A)	752,000	1-17-78	35.47	169000
VAN DUZEN RIVER NEAR BRIDGEVILLE	222	1950-	USGS	12-22-64	24.0(A)	48,700	12-14-77	15.05	18700
MATTOLE RIVER BASIN									
MATTOLE RIVER NEAR PETROLIA	240	1911-13 1915-	USGS	12-22-55	29.6(C)	90,400	12-14-77	19.27	38800
NOYO RIVER BASIN									
NOYO RIVER NEAR FORT BRAGG	106	1951-	USGS	12-22-64	26.3	24,000	3 -8-78	13.24	4500
NAVARRO RIVER BASIN									
NAVARRO RIVER NEAR NAVARRO	303	1950-	USGS	12-22-55	40.6(C)	64,500	1-16-78	25.35	22500
RUSSIAN RIVER BASIN									
RUSSIAN RIVER NEAR UKIAH	100	1911-13 1952-	USGS	12-21-55	21.0	18,900	12-14-77	18.54	9900
EAST FORK RUSSIAN RIVER NEAR CALPELLA	92	1941-	USGS	12-22-64	20.2	18,700	1 -9-78	17.57	8150
RUSSIAN RIVER NEAR HOPLAND	362	1939-	USGS	12-22-55 12- -37	27.0 30.0(A)	45,000 - -	1-16-78	17.23	17900
RUSSIAN RIVER NEAR CLOVERDALE	503	1951-	USGS	12-22-64	31.6(C)	55,200	1-16-78	19.80	27700
RUSSIAN RIVER NEAR HEALDSBURG	793	1939-	USGS	12-23-64 12- -37	27.0 30.8(A)	71,300 - -	1-16-78	19.28	41800
DRY CREEK NEAR CLOVERDALE	88	1941-	USGS	12-22-64	18.1	18,100	1-16-78	12.74	9600
DRY CREEK NEAR GEYSERVILLE	142	1959-	USGS	1-31-63	17.5	32,400	1 -9-78	16.00	18500
RUSSIAN RIVER NEAR GUERNEVILLE (HACIENDA BR.)	1340	1939-	USGS	12-23-64 12-23-55	49.6(A) 49.7(A)	93,400 - -	1-17-78	40.73	65200
SAN FRANCISCO BAY AREA									
WALKER CREEK BASIN									
WALKER CREEK NEAR TOMALES	37	1959-	USGS	1-16-73	22.9	6,600	1-16-78	19.67	3700
CORTE MADERA CREEK BASIN									
CORTE MADERA CREEK AT ROSS	18	1951-	USGS	12-22-55	17.5	3,620	1-14-78	14.32	2200
NOVATO CREEK BASIN									
NOVATO CREEK NEAR NOVATO	18	1948-	USGS	1-14-70	11.0	2,000	1-16-78	10.56	1850

STREAM AND STATION	DRAINAGE AREA IN SQ KM	PERIOD OF RECORD	SOURCE OF RECORD	PREVIOUS MAXIMUM OF RECORD			1977-1978 WATER YEAR		
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SAN FRANCISCO BAY AREA (CONTINUED)									
SONOMA CREEK BASIN									
SONOMA CREEK AT AGUA CALIENTE	150	1955-	USGS	12-22-55	5.2(C)	251	1-14-78	4.16	201
NAPA RIVER BASIN									
NAPA RIVER NEAR ST. HELENA	209	1929-32 1939-	USGS	12-22-55	4.9	356	1-16-78	4.93	382
NAPA RIVER NEAR NAPA	544	1929-32 1959-	USGS	1-31-63	8.4	478	1-16-78	6.57	433
PACHECO CREEK BASIN									
SAN RAMON CREEK AT SAN RAMON	15	1952-	USGS	10-13-62	5.2	45	1-4-78	1.96	16
SAN LORENZO CREEK BASIN									
SAN LORENZO CREEK AT HAYWARD	98	1939-40 1946-	USGS	10-13-62 12-22-55	6.0(A) 6.3(A)	211 - -	1-16-78	3.76	68
ALAMEDA CREEK BASIN									
ARROYO MOCHO NEAR PLEASANTON	365	1962-	USGS	2- 1-63 1-18-73	2.6(C) 3.8	49 48	1-17-78	3.40	27
ARROYO VALLE NEAR LIVERMORE	380	1912-30 1957-	USGS	12-23-55	4.2(A)	515	3 -5-78	1.70	30
ARROYO VALLE AT PLEASANTON	442	1957-	USGS	4- 3-58	7.7	319	3 -7-78	3.31	25
ALAMEDA CREEK NEAR NILES	1639	1891-	USGS	12-23-55	4.5	821	1-16-78	2.23	112
PATTERSON CREEK AT UNION CITY	- -	1958-	USGS	2- 1-63	6.2(A)	297	1-16-78	3.26	97
COYOTE CREEK BASIN									
COYOTE CREEK NEAR MORGAN	507	1902-12 1916-	USGS	3- 7-11	- -	707	5-28-78	0.76	2.5
UPPER PENITENCIA CREEK AT SAN JOSE	56	1961-	USGS	1-21-67	1.9	424	1-14-78	1.70	24
GUADALUPE RIVER BASIN									
GUADALUPE RIVER AT SAN JOSE	372	1929-	USGS	4- 2-58	5.1	259	1-14-78	3.37	5.7
SARATOGA CREEK AT SARATOGA	23	1933-	USGS	12-22-55	2.0(C)	77	1-14-78	2.04	73
MATADERO CREEK BASIN									
MATADERO CREEK AT PALO ALTO	18	1952-	USGS	2-27-73	1.7	31	2 -7-78	0.83	12
SAN FRANCISQUITO CREEK BASIN									
SAN FRANCISQUITO CREEK AT STANFORD UNIVERSITY	98	1930-41 1950-	USGS	12-22-55	4.1	157	1-16-78	1.95	66

PEAK FLOWS AND STAGES (CONTINUED)
ENGLISH UNITS

STREAM AND STATION	DRAINAGE AREA IN SQ MILES	PERIOD OF RECORD	SOURCE OF RECORD	PREVIOUS MAXIMUM OF RECORD DATE	PREVIOUS MAXIMUM OF RECORD STAGE IN FEET	PREVIOUS MAXIMUM OF RECORD DISCHARGE IN CFS	1977-1978 WATER YEAR DATE	1977-1978 WATER YEAR STAGE IN FEET	1977-1978 WATER YEAR DISCHARGE IN CFS
SAN FRANCISCO BAY AREA (CONTINUED)									
SONOMA CREEK BASIN									
SONOMA CREEK AT AGUA CALIENTE	58	1959-	USGS	12-22-55	17.1(C)	8,880	1-14-78	13.66	7100
NAPA RIVER BASIN									
NAPA RIVER NEAR ST. HELENA	81	1929-32 1939-	USGS	12-22-55	16.2	12,600	1-16-78	16.19	13500
NAPA RIVER NEAR NAPA	218	1929-32 1959-	USGS	1-31-63	27.6	16,900	1-16-78	21.54	15300
PACHECO CREEK BASIN									
SAN RAMON CREEK AT SAN RAMON	6	1952-	USGS	10-13-82	17.0	1,600	1-14-78	6.43	600
SAN LORENZO CREEK BASIN									
SAN LORENZO CREEK AT HAYWARD	38	1939-40 1946-	USGS	10-13-82 12-22-55	19.7(A) 20.8(A)	7,460 - -	1-16-78	12.32	2400
ALAMEDA CREEK BASIN									
ARROYO MICHO NEAR PLEASANTON	101	1962-	USGS	2- 1-63 1-18-73	8.60(C) 12.4	1,760 1,700	1-17-78	11.17	950
ARROYO VALLE NEAR LIVERMORE	107	1912-30 1957-	USGS	12-23-55	13.9(A)	18,200	3 -5-78	5.58	1100
ARROYO VALLE AT PLEASANTON	171	1957-	USGS	4- 3-58	25.4	11,300	3 -7-78	10.87	900
ALAMEDA CREEK NEAR NILES	433	1891-	USGS	12-23-55	14.9	29,000	1-16-78	7.33	3950
PATTERSON CREEK AT UNION CITY	--	1958-	USGS	2- 1-63	20.4(A)	10,500	1-16-78	10.71	3450
COYOTE CREEK BASIN									
COYOTE CREEK NEAR MADRONE	194	1902-12 1916-	USGS	3- 7-11	- -	25,000	5-28-78	2.49	090
UPPER PENITENCIA CREEK AT SAN JOSE	22	1961-	USGS	1-21-67	6.2	15,000	1-14-78	5.59	850
GUADALUPE RIVER BASIN									
GUADALUPE RIVER AT SAN JOSE	144	1929-	USGS	4- 2-58	16.6	9,150	1-14-78	11.09	200
SARATOGA CREEK AT SARATOGA	9	1933-	USGS	12-22-55	6.4(C)	2,730	1-14-78	6.69	2600
MATADERO CREEK BASIN									
MATADERO CREEK AT PALO ALTO	7	1952-		2-27-73	5.5	1,100	2 -7-78	2.73	450
SAN FRANCISQUITO CREEK BASIN									
SAN FRANCISQUITO CREEK AT STANFORD UNIVERSITY	38	1930-41 1950-	USGS	12-22-55	13.6	5,560	1-16-78	6.40	2350

PEAK FLOWS AND STAGES (CONTINUED)
METRIC UNITS

STREAM AND STATION	DRAINAGE AREA IN SQ KM	PERIOD OF RECORD	SOURCE OF RECORD	PREVIOUS MAXIMUM OF RECORD DATE	PREVIOUS MAXIMUM OF RECORD STAGE IN METRES	PREVIOUS MAXIMUM OF RECORD DISCHARGE IN M**3/S	1977-1978 WATER YEAR DATE	1977-1978 WATER YEAR STAGE IN METRES	1977-1978 WATER YEAR DISCHARGE IN M**3/S
CENTRAL COASTAL AREA									
REDWOOD CREEK BASIN									
REDWOOD CREEK AT REDWOOD CITY	5	1959-	USGS	1-31-63	2.9	18	1-16-78	1.77	7.5
PESCADERO CREEK BASIN									
PESCADERO CREEK NEAR PESCADERO	119	1951-	USGS	12-23-55	6.5	266	1-14-78	3.90	114
SAN LORENZO RIVER BASIN									
SAN LORENZO RIVER AT BIG TREES	287	1936-	USGS	12-23-55	6.9	860	1-14-78	6.55	305
SOQUEL CREEK BASIN									
SOQUEL CREEK AT SOQUEL	104	1951-	USGS	12-23-55	6.8	447	1-16-78	3.59	113
PAJARO RIVER BASIN									
RODEISH CREEK NEAR GILROY	18	1959-	USGS	1-31-63	2.5	35	2-9-78	1.81	10
TRES PINOS CREEK NEAR TRES PINOS	533	1939-	USGS	4- 4-41	2.4	228	2-10-78	2.96	176
SAN BENITO RIVER NEAR HOLLISTER	1517	1949-	USGS	4- 3-58	5.0	328	2-9-78	4.51	175
PAJARO RIVER AT CHITTENDEN	3071	1939-	USGS	12-24-55 4- 3-58	9.9 10.1	679	2-9-78	6.55	262
CORRALITOS CREEK AT FREEDOM	72	1956-	USGS	12-22-55	4.8(A)	102	1-16-78	2.56	37
SALINAS RIVER BASIN									
SALINAS RIVER NEAR POZO	181	1942-	USGS	1-25-69 1-25-69	4.2(C) 4.7(A)	526	3-4-78	6.19	256
JACK CREEK NEAR TEMPLETON	64	1949-	USGS	2-24-69	3.4	231	2-8-78	2.49	87
ESTRELLA RIVER NEAR ESTRELLA	2387	1954-	USGS	2-24-69	3.2(A)	920	2-10-78	3.18	903
SALINAS RIVER NEAR BRADLEY	6565	1948-	USGS	2-24-69	6.2(A)	3,310	2-10-78	5.69	2000
ARROYO SECO NEAR SOLEDAD	631	1901-	USGS	4- 3-58	5.0	801	2-7-78	3.82	518
SALINAS RIVER NEAR SPRECKELS	10763	1900-01 1929-	USGS	2-26-69 1-16-52	8.1(C) 8.2(AC)	2,350<- -	2-11-78	6.91	1630
CARMEL RIVER BASIN									
CARMEL RIVER AT ROBLES DEL RIO	499	1957-	USGS	4- 2-58 12-23-55	3.2 3.6(A)	201 196	1-16-78	3.19	199
BIG SUR RIVER BASIN									
BIG SUR RIVER NEAR BIG SUR	121	1950-	USGS	4- 2-58	3.5	160	1-15-78	4.36	305

PEAK FLOWS AND STAGES (CONTINUED)
ENGLISH UNITS

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				DATE	STAGE IN FEET	DISCHARGE IN CFS	DATE	STAGE IN FEET	DISCHARGE IN CFS
CENTRAL COASTAL AREA									
REDWOOD CREEK BASIN									
REDWOOD CREEK AT REDWOOD CITY	2	1959-	USGS	1-31-63	9.0	600	1-16-78	5.80	250
PESCADERO CREEK BASIN									
PESCADERO CREEK NEAR PESCADERO	46	1951-	USGS	12-23-55	21.3	9,420	1-14-78	12.78	4050
SAN LORENZO RIVER BASIN									
SAN LORENZO RIVER AT BIG TREES	111	1936-	USGS	12-23-55	22.6	30,000	1-14-78	21.48	10800
SOQUEL CREEK BASIN									
SOQUEL CREEK AT SOQUEL	40	1951-	USGS	12-23-55	22.3	15,800	1-16-78	11.77	4000
PAJARO RIVER BASIN									
ROOFISH CREEK NEAR GILROY	7	1959-	USGS	1-31-63	8.3	1,240	2-9-78	5.93	350
TRES PINOS CREEK NEAR TRES PINOS	206	1939-	USGS	4- 4-41	7.8	8,060	2-10-78	9.70	6200
SAN BENITO RIVER NEAR HOLLISTER	586	1949-	USGS	4- 3-58	16.3	11,600	2-9-78	14.80	6200
PAJARO RIVER AT CHITTENDEN	1186	1939-	USGS	12-24-55 4- 3-58	32.5 33.1	24,000	2-9-78	21.50	9300
CORRALITOS CREEK AT FREEDOM	28	1956-	USGS	12-22-55	15.6(A)	3,620	1-16-78	8.39	1300
SALINAS RIVER BASIN									
SALINAS RIVER NEAR POZO	70	1942-	USGS	1-25-69 1-25-69	13.9(C) 15.5(A)	18,600	3-4-78	20.30	9050
JACK CREEK NEAR TEMPLETON	25	1949-	USGS	2-20-69	11.3	8,160	2-8-78	8.16	3100
ESTRELLA RIVER NEAR ESTRELLA	922	1954-	USGS	2-20-69	10.4(A)	32,500	2-10-78	10.43	31900
SALINAS RIVER NEAR BRADLEY	2535	1948-	USGS	2-20-69	20.3(A)	117,000	2-10-78	18.68	70600
ARROYO SECO NEAR SOLEDAD	244	1901-	USGS	4- 3-58	16.4	28,300	2-7-78	12.52	18300
SALINAS RIVER NEAR SPRECKELS	4156	1900-01 1929-	USGS	2-26-69 1-14-52	26.5(C) 26.9(AC)	83,100<- -	2-11-78	22.66	57400
CARMEL RIVER BASIN									
CARMEL RIVER AT ROBLES DEL RIO	193	1957-	USGS	4- 2-58 12-23-55	10.5 11.7(A)	7,100 6,930	1-16-78	10.47	7050
BIG SUR RIVER BASIN									
BIG SUR RIVER NEAR BIG SUR	47	1950-	USGS	4- 2-58	11.6	5,680	1-15-78	14.30	10800

PEAK FLOWS AND STAGES (CONTINUED)
METRIC UNITS

STREAM AND STATION	DRAINAGE AREA IN SQ KM	PERIOD OF RECORD	SOURCE OF RECORD	PREVIOUS MAXIMUM OF RECORD DATE	PREVIOUS MAXIMUM OF RECORD STAGE IN METRES	PREVIOUS MAXIMUM OF RECORD DISCHARGE IN M /S	1977-1978 WATER YEAR DATE	1977-1978 WATER YEAR STAGE IN METRES	1977-1978 WATER YEAR DISCHARGE IN M /S
CENTRAL COASTAL AREA (CONTINUED)									
ARROYO DE LA CRUZ BASIN									
ARROYO DE LA CRUZ NEAR SAN SIMEON	104	1950-	USGS	12- 6-66	4.7	996	1-16-78	3.53	413
SANTA MARIA RIVER BASIN									
SISQUOC RIVER NEAR GAREY	1219	1940-	USGS	1-25-69	4.0	693	2-10-78	3.60	479
SANTA MARIA RIVER AT GUADALUPE	4509	1940-	USGS	1-16-52	2.5(C)	928	3 -4-78	0.00	628(E)
SANTA YNEZ RIVER BASIN									
SANTA YNEZ RIVER BELOW GIBRALTAR DAM NEAR SANTA BARBARA	559	1920-	USGS	1-25-69	7.9	1,530	3 -4-78	0.00	481(E)
SANTA CRUZ CREEK NEAR SANTA YNEZ	191	1941-	USGS	2-24-69	4.8(A)	199	2 -9-78	3.77	143
SAN JOSE CREEK BASIN									
SAN JOSE CREEK NEAR GOLETA	15	1941-	USGS	1-25-69 1-21-43	3.1 3.9	56 - -	1-16-78	2.45	50
ATASCADERO CREEK BASIN									
ATASCADERO CREEK NEAR GOLETA	49	1941-	USGS	1-25-69	4.0	148	1-16-78	2.58	122
CARPINTERIA CREEK BASIN									
CARPINTERIA CREEK NEAR CARPINTERIA	33	1941-	USGS	12-27-71	4.3(A)	251			N/A
SOUTH COASTAL AREA									
VENTURA CREEK BASIN									
MATILIJA CREEK AT MATILIJA HOT SPRINGS	142	1927-	USGS	1-25-69	5.0	566	3 -4-78	4.24	467
VENTURA RIVER NEAR MEINERS OAKS	196	1959-	USGS	1-25-69	- -	792(E)	3 -4-78	0.00	562
COYOTE CREEK NEAR OAK VIEW	33	1958-	USGS	1-25-69	3.7	226	3 -4-78	3.44	173
VENTURA RIVER NEAR VENTURA	484	1911-14 1929-	USGS	1-25-69	7.4(A)	1,640	2-10-78	5.83	1800
SANTA CLARA RIVER BASIN									
SAN CLARA RIVER AT LOS ANGELES-VENTURA CO. LINE	1667	1952-	USGS	1-25-69	5.8	1,950	2 -9-78	3.31	645
PIRU CREEK ABOVE LAKE PIRU	963	1955-	USGS	2-25-69	5.7(A)	883	3 -4-78	3.11	311
SESPE CREEK NEAR FILLMORE	650	1911-13 1927-	USGS	1-25-69 2-25-69	6.3 7.6(A)	1,700 - -	2-10-78	6.83	2070
SANTA PAULA CREEK NEAR SANTA PAULA	104	1927-	USGS	2-25-69	4.6(A)	594	2-10-78	4.21	453
MALIBU CREEK BASIN									
MALIBU CREEK AT CRATER CAMP NEAR CALABASAS	271	1931-	USGS	1-25-69	6.5	957	3 -4-78	5.07	549
HALLUNA CREEK BASIN									
HALLUNA CREEK NEAR CULVER CITY	233	1928-	USGS	11-21-67	4.5	920	2-10-78	4.52	795

PEAK FLOWS AND STAGES (CONTINUED)
ENGLISH UNITS

STREAM AND STATION	DRAINAGE AREA IN SQ MILES	PERIOD OF RECORD	SOURCE OF RECORD	PREVIOUS MAXIMUM OF RECORD DATE	STAGE IN FEET	DISCHARGE IN CFS	1977-1978 WATER YEAR DATE	STAGE IN FEET	DISCHARGE IN CFS
CENTRAL COASTAL AREA (CONTINUED)									
ARROYO DE LA CRUZ BASIN									
ARROYO DE LA CRUZ NEAR SAN SIMEON	41	1950-	USGS	12- 6-66	15.3	35,200	1-16-78	11.59	14600
SANTA MARIA RIVER BASIN									
SISQUOC RIVER NEAR GAREY	471	1940-	USGS	1-25-69	13.0	24,500	2-10-78	11.80	16800
SANTA MARIA RIVER AT GUADALUPE	1741	1940-	USGS	1-16-52	8.2(C)	32,800	3 -4-78	0.00	22200(E)
SANTA YNEZ RIVER BASIN									
SANTA YNEZ RIVER BELOW GIBRALTAR DAM NEAR SANTA BARBARA	216	1920-	USGS	1-25-69	25.8	54,200	3 -4-78	0.00	17000(E)
SANTA CRUZ CREEK NEAR SANTA YNEZ	74	1941-	USGS	2-24-69	14.5(A)	7,050	2 -9-78	12.37	5050
SAN JOSE CREEK BASIN									
SAN JOSE CREEK NEAR GOLETA	6	1941-	USGS	1-25-69 1-21-43	10.1 12.7	2,000 - -	1-16-78	8.05	1750
ATASCADERO CREEK BASIN									
ATASCADERO CREEK NEAR GOLETA	19	1941-	USGS	1-25-69	13.0	5,230	1-16-78	8.47	4300
CARPINTERIA CREEK BASIN									
CARPINTERIA CREEK NEAR CARPINTERIA	15	1941-	USGS	12-27-71	14.1(A)	8,880			N/A
SOUTH COASTAL AREA									
VENTURA CREEK BASIN									
MATILIJA CREEK AT MATILIJA HOT SPRINGS	55	1927-	USGS	1-25-69	16.5	20,000	3 -4-78	13.91	16500
VENTURA RIVER NEAR HOMERS DAMS	76	1959-	USGS	1-25-69	- -	28,000(E)	3 -4-78	0.00	19900
COYOTE CREEK NEAR OAK VIEW	13	1958-	USGS	1-25-69	12.0	8,000	3 -4-78	11.28	6150
VENTURA RIVER NEAR VENTURA	188	1911-14 1929-	USGS	1-25-69	20.3(A)	58,000	2-10-78	19.14	63600
SANTA CLARA RIVER BASIN									
SAN CLARA RIVER AT LOS ANGELES-VENTURA CO. LINE	644	1952-	USGS	1-25-69	19.0	68,800	2 -9-78	10.85	22800
PIRU CREEK ABOVE LAKE PIRU	372	1955-	USGS	2-25-69	18.6(A)	31,200	3 -4-78	10.20	11000
SESPE CREEK NEAR FILLMORE	251	1911-13 1927-	USGS	1-25-69 2-25-69	20.8 25.0(A)	60,000 - -	2-10-78	22.40	73000
SANTA PAULA CREEK NEAR SANTA PAULA	40	1927-	USGS	2-25-69	15.2(A)	21,000	2-10-78	13.80	16000
MALIBU CREEK BASIN									
MALIBU CREEK AT CRATER CAMP NEAR CALABASAS	105	1931-	USGS	1-25-69	21.4	33,800	3 -4-78	16.64	19400
HALLONA CREEK BASIN									
HALLONA CREEK NEAR CULVER CITY	90	1928-	USGS	11-21-67	14.9	32,500	2-10-78	14.84	28100

STREAM AND STATION	DRAINAGE AREA IN SQ KM	PERIOD OF RECORD	SOURCE OF RECORD	PREVIOUS MAXIMUM OF RECORD DATE	PREVIOUS MAXIMUM OF RECORD STAGE IN METRES	PREVIOUS MAXIMUM OF RECORD DISCHARGE IN M /S	1977-1978 WATER YEAR DATE	1977-1978 WATER YEAR STAGE IN METRES	1977-1978 WATER YEAR DISCHARGE IN M /S
SOUTH COASTAL AREA (CONTINUED)									
LOS ANGELES RIVER BASIN									
LOS ANGELES RIVER AT SEPULVEDA DAM	409	1929-	USGS	1-25-69	3.5	390	3 -4-78	3.67	416
LOS ANGELES RIVER AT LOS ANGELES	1331	1929-	USGS	3- 2-38	- -	1,900	2-10-78	4.46	1490
RIO HONDO NEAR DOWNEY	370	1928-	USGS	1-25-69	4.6	1,330	3 -1-78	3.73	906
SANTA ANA RIVER BASIN									
SANTA ANA RIVER NEAR MENTONE	581	1896-	USGS	3- 2-38	4.4(C)	1,480	2-10-78	0.00	61
SAN GABRIEL RIVER BELOW SANTA FE DAM NEAR BALDWIN PARK	611	1942-	USGS	1-26-69	6.8	874	3 -5-78	5.55	402
SANTA ANA RIVER AT "E" ST NEAR SAN BERNARDINO	1377	1939-58 1966-	USGS	2-25-69	5.0	792	3 -4-78	1.74	387
MILL CREEK NEAR YUCAIPA	108	1919-38 1947-	USGS	1-25-69	5.1(A)	1,000	2-10-78	3.37	152
LYTLE CREEK NEAR FONTANA	119	1918-	USGS	1-25-69	4.6(A)	1,020	3 -4-78	2.38	0.0
SANTA ANA RIVER AT M.W.D. CROSSING	2211	1970-	USGS	12-29-70	3.3	150			N/A
SAN JACINTO RIVER NEAR SAN JACINTO	365	1920-	USGS	2-16-27	- -	1,270	1-15-78	4.34	127
SANTIAGO CREEK AT MODJESKA	33	1961-	USGS	2-25-69	1.9	184	3 -4-78	0.00	RQ(E)
SANTIAGO CREEK AT SANTA ANA	246	1928-	USGS	2-25-69 1-14-52	2.8(C) 3.0	186 - -	3 -4-78	2.07	52
SAN JUAN CREEK BASIN									
SAN JUAN CREEK NEAR SAN JUAN CAPISTRANO	274	1928-	USGS	2-25-69	1.7(AC)	634	3 -4-78	0.00	212
SANTA MARGARITA RIVER BASIN									
SANTA MARGARITA RIVER NEAR TEMECULA	1522	1923-	USGS	2-16-27	4.5(C)	707	3 -1-78	0.00	396(E)
SANTA MARGARITA RIVER AT YSIDORA	1914	1923-	USGS	2-16-27	5.5(C)	951	3 -1-78	5.52	600
SAN LUIS REY RIVER BASIN									
SAN LUIS REY RIVER AT MONSERATE MANROAD NR PALA	966	1935-41 1946-	USGS	2- 7-37	2.7(C)	- -	3 -1-78	1.66	47
SAN LUIS REY RIVER NEAR BONSALL	1326	1916-18 1929-	USGS	3- 3-38	4.9	512	1-17-78	4.56	233
SAN DIEGUITO RIVER BASIN									
SANTA YSABEL CREEK NEAR PAMULA	290	1912-23 1943-	USGS	1-27-16	4.3(C)	804	3 -1-78	2.83	113
SANTA YSABEL CREEK NEAR SAN PASQUAL	331	1905-12 1947-	USGS	3-24-06	1.9(C)	226	3 -1-78	3.15	124
SAN DIEGO RIVER BASIN									
SAN DIEGO RIVER NEAR SANTEE	976	1912-	USGS	1-27-16	7.7(C)	1,990	1-15-78	3.29	RQ
SWEETWATER RIVER BASIN									
SWEETWATER RIVER NEAR DESCANSO	119	1905-27 1956-	USGS	2-14-27	4.0(AC)	317	3 -2-78	2.47	32
TIJUANA RIVER BASIN									
TIJUANA RIVER NEAR DULZURA	1205	1936-	USGS	2- 7-37	2.6	133	3 -1-78	2.44	RQ

PEAK FLOWS AND STAGES (CONTINUED)
ENGLISH UNITS

STREAM AND STATION	DRAINAGE AREA IN SQ MILES	PERIOD OF RECORD	SOURCE OF RECORD	PREVIOUS MAXIMUM OF RECORD			1977-1978 WATER YEAR		
				DATE	STAGE IN FEET	DISCHARGE IN CFS	DATE	STAGE IN FEET	DISCHARGE IN CFS
SOUTH COASTAL AREA (CONTINUED)									
LOS ANGELES RIVER BASIN									
LOS ANGELES RIVER AT SEPULVEDA DAM	158	1929-	USGS	1-25-69	11.4	13,800	3 -4-78	12.04	14700
LOS ANGELES RIVER AT LOS ANGELES	514	1929-	USGS	3- 2-38	- -	67,000	2-10-78	14.62	52700
RIO HONDO NEAR DOWNEY	143	1928-	USGS	1-25-69	15.2	46,900	3 -1-78	12.24	32000
SANTA ANA RIVER BASIN									
SANTA ANA RIVER NEAR MENTONE	209	1896-	USGS	3- 2-38	14.3(C)	52,300	2-10-78	0.00	2150
SAN GABRIEL RIVER BELOW SANTA FE DAM NEAR BALDWIN PARK	236	1942-	USGS	1-26-69	22.2	30,900	3 -5-78	18.22	14200
SANTA ANA RIVER AT 'E' ST NEAR SAN BERNARDINO	532	1939-54 1966-	USGS	2-25-69	16.5	28,000	3 -4-78	5.70	13700
MILL CREEK NEAR YUCAIPA	42	1919-38 1947-	USGS	1-25-69	16.8(A)	35,400	2-10-78	11.05	5400
LYTLE CREEK NEAR FONTANA	46	1918-	USGS	1-25-69	15.0(A)	35,900	3 -4-78	7.80	
SANTA ANA RIVER AT M.W.D. CROSSING	854	1970-	USGS	12-29-70	10.9	5,300			N/A
SAN JACINTO RIVER NEAR SAN JACINTO	141	1920-	USGS	2-16-27	- -	45,000	1-15-78	14.25	4500
SANTIAGO CREEK AT MODJESKA	13	1961-	USGS	2-25-69	6.2	6,520	3 -4-78	0.00	3000(E)
SANTIAGO CREEK AT SANTA ANA	95	1928-	USGS	2-25-69 1-16-52	9.1(C) 9.8	6,600 - -	3 -4-78	6.80	1850
SAN JUAN CREEK BASIN									
SAN JUAN CREEK NEAR SAN JUAN CAPISTRANO	106	1928-	USGS	2-25-69	5.6(AC)	22,400	3 -4-78	0.00	7500
SANTA MARGARITA RIVER BASIN									
SANTA MARGARITA RIVER NEAR TEMECULA	588	1923-	USGS	2-16-27	14.6(C)	25,000	3 -1-78	0.00	14000(E)
SANTA MARGARITA RIVER AT YSIDORA	739	1923-	USGS	2-16-27	18.0(C)	33,600	3 -1-78	18.12	21200
SAN LUIS REY RIVER BASIN									
SAN LUIS REY RIVER AT MONSERATE NARROWS NR PALA	373	1935-41 1946-	USGS	2- 7-37	8.7(C)	- -	3 -1-78	5.45	1700
SAN LUIS REY RIVER NEAR BONSALL	512	1916-18 1929-	USGS	3- 3-38	16.0	18,100	1-17-78	14.97	8250
SAN DIEGUITO RIVER BASIN									
SANTA YSABEL CREEK NEAR RAMONA	112	1912-23 1943-	USGS	1-27-16	14.0(C)	28,400	3 -1-78	9.28	4000
SANTA YSABEL CREEK NEAR SAN PASQUAL	128	1905-12 1947-	USGS	3-24-06	6.3(C)	8,000	3 -1-78	10.35	4400
SAN DIEGO RIVER BASIN									
SAN DIEGO RIVER NEAR SANTEE	377	1912-	USGS	1-27-16	25.1(C)	70,200	1-15-78	10.79	2850
SWEETWATER RIVER BASIN									
SWEETWATER RIVER NEAR DESCANSO	66	1905-27 1956-	USGS	2-16-27	13.2(AC)	11,200	3 -2-78	8.12	1150
TIJUANA RIVER BASIN									
TIJUANA RIVER NEAR DULZURA	681	1936-	USGS	2- 7-37	8.5	4,700	3 -1-78	8.00	3000

PEAK FLOWS AND STAGES (CONTINUED)
METRIC UNITS

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				DATE	STAGE IN METRES	DISCHARGE IN M /S	DATE	STAGE IN METRES	DISCHARGE IN M /S
CENTRAL VALLEY AREA									
SACRAMENTO RIVER BASIN									
SACRAMENTO RIVER AT DELTA	1100	1944-	USGS	12-22-64	6.1	1,100	1-16-78	5.03	874
PIT RIVER NEAR MCARTHUR	6410	1904-31 1951-	USGS	3-19-07	5.1	957	4-29-78	1.82	54
PIT RIVER BELOW PIT NO.4 DAM	12035	1922-	USGS	1-25-70	5.5	920(E)	3 -9-78	2.92	147
MCCLOUD RIVER ABOVE SHASTA LAKE	1564	1945-	USGS	12-22-55	8.6	1,280	1-16-78	6.79	59
SACRAMENTO RIVER AT KESWICK	16752	1938-	USGS-DWR	2-23-40	14.4(C)	5,270	3 -9-78	7.64	1130
CLEAR CREEK AT FRENCH GULCH	297	1950-	USGS	12-22-64	4.2	215	1-14-78	4.07	258
CLEAR CREEK NEAR IGO	590	1940-	USGS	12-21-55	4.2	693	1-17-78	2.50	160
COW CREEK NEAR MILLVILLE	1100	1949-	USGS	12-27-51	6.6	1,280	1 -9-78	5.58	1020
COTTONWOOD CREEK NEAR COTTONWOOD	2387	1940-	USGS	12-22-64	6.0	1,700	1 -9-78	5.46	1110
BATTLE CREEK BELOW COLEMAN FISH HATCHERY NEAR COTTONWOOD	927	1961-	USGS	12-11-37	4.8(AC)	991	1-16-78	2.30	167
SACRAMENTO RIVER AT RED BLUFF	- -	1960-	DWR	1-24-70	14.7	4,470	1 -9-78	11.97	2840
PAYNES CREEK NEAR RED BLUFF	240	1949-	USGS	12- 1-61	3.4	300	1-16-78	2.54	122
RED BANK CREEK NEAR RED BLUFF	203	1948-	DWR	1- 5-65	3.1	275	1-14-78	3.09	263
ANTELOPE CREEK NEAR RED BLUFF	318	1940-	USGS	1-23-70	5.5	487	1-16-78	3.87	139
ELDER CREEK NEAR PASKENTA	240	1948-	USGS	2-24-58	4.2(C)	331	1-14-78	2.97	182
MILL CREEK NEAR LOS MOLINOS	339	1909-13 1928-	USGS	12-11-37	7.1(A)	1,030	3 -4-78	3.04	189
THOMES CREEK AT PASKENTA	502	1920-	USGS-DWR	12-22-64	4.7	1,070	1-14-78	2.29	210
DEER CREEK NEAR VINA	534	1911-15 1920-	USGS-DWR	12-10-37	5.9(A)	673	1-16-78	3.23	236
SACRAMENTO RIVER AT VINA BRIDGE	- -	1945-	DWR	1-24-70 1-24-70	58.4(T) - -	4,840 6,460(L)	1-16-78	26.57	3430
SACRAMENTO RIVER HAMILTON CITY (BEFORE SHASTA DAM)	- -	1927-43	DWR	12-11-37	45.9(CT)	4,840(EL)			
SACRAMENTO RIVER AT HAMILTON CITY (AFTER SHASTA DAM)	- -	1944-	DWR	1-24-70	46.0(T)	4,420	1-17-78	14.38	3480
BIG CHICO CREEK NEAR CHICO	186	1930-	USGS	1- 5-65	4.7	271	1-16-78	3.12	133
STONY CREEK NEAR FRUTO	1548	1901-12 1960-	USGS	12-23-64	4.8	1,140	1-14-78	3.88	685
SACRAMENTO RIVER AT ORD FERRY (BEFORE SHASTA DAM)	- -	1921-43	DWR	2-28-40	37.1(T)	1,140(EL)			
SACRAMENTO RIVER AT ORD FERRY (AFTER SHASTA DAM)	- -	1944-	DWR	1-24-70	36.5(T)	7,500(EL)	1-17-78	20.18	3450
SACRAMENTO RIVER AT BUTTE CITY (BEFORE SHASTA DAM)	- -	1921-43	USGS-DWR	2- 7-42	29.5	7,500			

PEAK FLOWS AND STAGES (CONTINUED)
ENGLISH UNITS

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CENTRAL VALLEY AREA									
SACRAMENTO RIVER BASIN									
SACRAMENTO RIVER AT DELTA	425	1944-	USGS	12-22-64	20.1	38,800	1-16-78	16.51	30900
PIT RIVER NEAR MIDDLE	2475	1904-31 1951-	USGS	3-19-07	16.7	33,800	4-29-78	5.98	1900
PIT RIVER BELOW PIT NO.4 DAM	4647	1922-	USGS	1-25-70	18.1	32,500(E)	3 -9-78	9.58	5200
MCCLOUD RIVER ABOVE SHASTA LAKE	604	1945-	USGS	12-22-55	28.2	45,200	1-16-78	22.27	2100
SACRAMENTO RIVER AT KESWICK	6468	1938-	USGS-DWR	2-23-40	47.2(C)	186,000	3 -9-78	25.05	39800
CLEAR CREEK AT FRENCH GULCH	115	1950-	USGS	12-22-64	13.7	7,600	1-14-78	13.35	9150
CLEAR CREEK NEAR IGO	228	1940-	USGS	12-21-55	13.8	24,500	1-17-78	8.20	5650
COW CREEK NEAR MILLVILLE	425	1949-	USGS	12-27-51	21.6	45,200	1 -9-78	18.31	36000
COTTONWOOD CREEK NEAR COTTONWOOD	922	1940-	USGS	12-22-64	19.6	60,000	1 -9-78	17.92	39100
BATTLE CREEK BELOW COLEMAN FISH HATCHERY NEAR COTTONWOOD	358	1961-	USGS	12-11-37	15.8(AC)	35,000	1-16-78	7.58	5900
SACRAMENTO RIVER AT HEND BRIDGE	--	1960-	DWR	1-24-70	48.3	158,000	1 -9-78	39.27	100200
PAYNES CREEK NEAR RED BLUFF	93	1949-	USGS	12- 1-61	11.3	10,600	1-16-78	8.33	4300
RED BANK CREEK NEAR RED BLUFF	90	1948-	DWR	1- 5-65	10.1	9,730	1-14-78	10.15	9300
ANTELOPE CREEK NEAR RED BLUFF	123	1940-	USGS	1-23-70	18.0	17,200	1-16-78	12.69	4900
ELDER CREEK NEAR PASKENTA	93	1948-	USGS	2-24-58	13.9(C)	11,700	1-14-78	9.74	6450
MILL CREEK NEAR LOS MOLINOS	131	1909-13 1928-	USGS	12-11-37	23.4(A)	36,400	3 -4-78	9.97	6700
THOMES CREEK AT PASKENTA	190	1920-	USGS-DWR	12-22-64	15.3	37,800	1-14-78	7.51	7400
DEER CREEK NEAR VINA	208	1911-15 1920-	USGS-DWR	12-10-37	19.2(A)	23,800	1-16-78	10.60	8350
SACRAMENTO RIVER AT VINA BRIDGE	--	1945-	DWR	1-24-70 1-24-70	191.5(T) - -	171,000 228,000(L)	1-16-78	87.18	121000
SACRAMENTO RIVER AT HAMILTON CITY (BEFORE SHASTA DAM)	--	1927-43	DWR	12-11-37	150.7(CT	350,000(EL			
SACRAMENTO RIVER AT HAMILTON CITY (AFTER SHASTA DAM)	--	1944-	DWR	1-24-70	150.8(T)	156,000	1-17-78	47.18	123000
BIG CHICO CREEK NEAR CHICO	72	1930-	USGS	1- 5-65	15.4	9,580	1-16-78	10.25	4700
STONY CREEK NEAR ORDIN	598	1901-12 1960-	USGS	12-23-64	15.9	40,200	1-14-78	12.72	24200
SACRAMENTO RIVER AT ORD FERRY (BEFORE SHASTA DAM)	--	1921-43	DWR	2-28-40	121.7(T)	370,000(EL			
SACRAMENTO RIVER AT ORD FERRY (AFTER SHASTA DAM)	--	1944-	DWR	1-24-70	119.8(T)	265,000(EL	1-17-78	66.21	122000
SACRAMENTO RIVER AT BUTTE CITY (BEFORE SHASTA DAM)	--	1921-43	USGS-DWR	2- 7-42	96.9	170,000			

STREAM AND STATION	DRAINAGE AREA IN SQ KM	PERIOD OF RECORD	SOURCE OF RECORD	PREVIOUS MAXIMUM OF RECORD: DATE	STAGE IN METRES	DISCHARGE IN M /S	1977-197A WATER YEAR: DATE	STAGE IN METRES	DISCHARGE IN M /S
CENTRAL VALLEY AREA (CONTINUED)									
SACRAMENTO RIVER BASIN (CONTINUED)									
SACRAMENTO RIVER AT BUTTE CITY (AFTER SHASTA DAM)	- -	1944-	USGS-DWR	2-20-58 1-24-70	29.5 - -	4,530 6,730(L)	1-17-78	28.30	3430
MOULTON WEIR SPILL TO BUTTE BASIN	- -	1935-	DWR	1-25-70 2- 7-42	25.5 25.5	1,030(B) - -	1-17-78	24.82	521
COLUSA WEIR SPILL TO BUTTE BASIN	- -	1935-	DWR	3- 1-40	21.5	2,440(B)	1-17-78	20.52	1590
SACRAMENTO RIVER AT COLUSA	31365	1940-	USGS-DWR	2- A-42	21.1	1,390	1-18-78	20.23	1280
COLUSA BASIN DRAIN AT HIGHWAY 20	- -	1924-	DWR	2-21-58	15.8	719(E)	1-1A-7A	15.79	294
BUTTE CREEK NEAR CHICO	380	1930-	USGS	12-22-64	4.3	600	3 -4-78	2.61	222
BUTTE SLOUGH NEAR MERIDIAN	- -	196A-	DWR	1-26-70	18.7(E)	4,300(E)	1-18-78	17.78	2A60
TISDALE WEIR SPILL TO SUTTER BYPASS	- -	1940-	DWR	3- 1-40	16.2	727(B)	1-18-78	15.09	47A
SACRAMENTO RIVER BELOW WILKINS SLOUGH	3347A	193A-	USGS	1-26-70 3- 1-40	15.5 16.1	A29 - -	1-18-7A	14.9A	809
SACRAMENTO RIVER AT KNIGHTS LANDING	37661	1921-39 1940-	USGS-DWR	1-26-70 2- A-42	12.5 12.7(D)	A72 - -	2 -A-7A	0.00	841
MIDDLE FORK FEATHER RIVER NEAR CLIO	1774	1925-	USGS	2- 1-63	4.9	410	1-18-7A	3.18	92
MIDDLE FORK FEATHER RIVER NEAR MERRIMAC	2750	1951-	USGS	12-22-64	A.1(A)	2,440	1-17-7A	3.A2	331
NORTH FORK FEATHER RIVER NEAR PRATTVILLE	1276	1905-	USGS	3-19-07	4.9(C)	283	3-16-7A	1.76	3A
BUTT CREEK BELOW ALMANOR-BUTT CREEK TUNNEL NEAR PRATTVILLE	17A	1936-59 1964-	USGS	12-23-64	1.8	108	1-14-78	0.59	12
INDIAN CREEK NEAR CRESCENT MILLS	1914	1906-18 1930-	USGS	3-19-07	6.2(C)	707	3 -5-7A	2.78	137
SPANISH CREEK ABOVE BLACKHAWK CREEK AT KEDDIE	476	1933-	USGS	12-22-64	4.1	436	1-16-7A	2.52	149
NORTH FORK FEATHER RIVER AT PULGA	5058	1910-	USGS	12-22-64	10.9	2,070(H)	1-15-78	5.91	506
WEST BRANCH FEATHER RIVER NEAR PARADISE	245	1957-	USGS-DWR	12-22-64	A.0(A)	744	1-14-7A	3.A9	171
FEATHER RIVER AT OROVILLE (BEFORE OROVILLE DAM)		1894-A7	USGS-DWR NOAA	3-19-07 12-22-64	8.6 - -	6,510(CP) 7,140(Q)			
FEATHER RIVER AT OROVILLE (AFTER OROVILLE DAM)	9386	1967-	USGS-DWR	1-25-70	A.7	1,590(N)	10 -A-77	0.00	26
THERMALITO AFTERBAY RELEASE TO FEATHER RIVER NEAR OROVILLE	- -	1967-	USGS-DWR	1-2A-70	7.1	611	3 -9-7A	2.55	454
FEATHER RIVER NEAR GRIDLEY (BEFORE OROVILLE DAM)	9521	1929-67	USGS-DWR	12-23-55	31.2(T)	- -			
FEATHER RIVER NEAR GRIDLEY (AFTER OROVILLE DAM)	9520	1967-	USGS-DWR	1-27-70	28.3(T)	2,060	3 -6-7A	24.77	492
SOUTH HONCUT CREEK NEAR MARYSVILLE	80	1950-	USGS	12-26-64	5.9	498	1-16-7A	2.73	93

STREAM AND STATION	DRAINAGE AREA IN SQ MILES	PERIOD OF RECORD	SOURCE OF RECORD	PREVIOUS MAXIMUM OF RECORD: DATE	PREVIOUS MAXIMUM OF RECORD: STAGE IN FEET	PREVIOUS MAXIMUM OF RECORD: DISCHARGE IN CFS	1977-1978 WATER YEAR: DATE	1977-1978 WATER YEAR: STAGE IN FEET	1977-1978 WATER YEAR: DISCHARGE IN CFS
CENTRAL VALLEY AREA (CONTINUED)									
SACRAMENTO RIVER BASIN (CONTINUED)									
SACRAMENTO RIVER AT BUTTE CITY (AFTER SHASTA DAM)	--	1944-	USGS-DWR	2-20-58 1-24-70	96.7 - -	160,000 225,000(L)	1-17-78	92.84	121000
MOULTON WEIR SPILL TO BUTTE BASIN	--	1935-	DWR	1-25-70 2- 7-42	83.6 83.8	36,400(B) - -	1-17-78	81.44	18400
COLUSA WEIR SPILL TO BUTTE BASIN	--	1935-	DWR	3- 1-40	70.6	86,000(B)	1-17-78	67.32	56100
SACRAMENTO RIVER AT COLUSA	12110	1940-	USGS-DWR	2- 8-42	69.2	49,000	1-18-78	66.36	45200
COLUSA BASIN DRAIN AT HIGHWAY 20	--	1924-	DWR	2-21-58	51.9	25,400(E)	1-18-78	51.81	10400
BUTTE CREEK NEAR CHICO	147	1930-	USGS	12-22-64	14.1	21,200	3 -4-78	8.56	7850
BUTTE SLOUGH NEAR MERIDIAN	--	1968-	DWR	1-26-70	61.5(E)	152,000(E)	1-18-78	58.32	101000
TISDALE WEIR SPILL TO SUTTER BYPASS	--	1940-	DWR	3- 1-40	53.3	25,700(B)	1-18-78	49.52	16900
SACRAMENTO RIVER BELOW WILKINS SLOUGH	12926	1938-	USGS	1-26-70 3- 1-40	50.7 52.8	29,300 - -	1-18-78	49.15	28600
SACRAMENTO RIVER AT KNIGHTS LANDING	14541	1921-39 1940-	USGS-DWR	1-26-70 2- 8-42	40.9 41.8(D)	30,800 - -	2 -8-78	0.00	29700
MIDDLE FORK FEATHER RIVER NEAR CLIO	686	1925-	USGS	2- 1-63	16.2	14,500	1-18-78	10.44	3250
MIDDLE FORK FEATHER RIVER NEAR MERRIMAC	1062	1951-	USGS	12-22-64	26.5(A)	86,200	1-17-78	12.52	11700
NORTH FORK FEATHER RIVER NEAR PRATTVILLE	493	1915-	USGS	3-19-07	16.2(C)	10,000	3-16-78	5.77	1350
BUTT CREEK BELOW ALMADOR-BUTT CREEK TUNNEL NEAR PRATTVILLE	69	1936-59 1960-	USGS	12-23-64	5.9	3,830	1-14-78	1.94	450
INDIAN CREEK NEAR CRESCENT MILLS	739	1906-18 1930-	USGS	3-19-07	20.2(C)	25,000	3 -5-78	9.12	4850
SPANISH CREEK ABOVE BLACKHAWK CREEK AT KEDDIE	184	1933-	USGS	12-22-64	13.5	15,400	1-16-78	8.26	5300
NORTH FORK FEATHER RIVER AT PULGA	1953	1910-	USGS	12-22-64	35.8	73,000(H)	1-15-78	19.38	17900
WEST BRANCH FEATHER RIVER NEAR PARADISE	110	1957-	USGS-DWR	12-22-64	26.2(A)	26,300	1-14-78	12.77	6050
FEATHER RIVER AT OROVILLE (BEFORE OROVILLE DAM)	3624	1890-97	USGS-DWR NOAA	3-19-07 12-22-64	28.2 - -	230,000(CP 252,000(Q)			
FEATHER RIVER AT OROVILLE (AFTER OROVILLE DAM)	3624	1967-	USGS-DWR	1-25-70	15.3	56,300(N)	10 -4-77	0.00	950
THERMALITO AFTERBAY RELEASE TO FEATHER RIVER NEAR OROVILLE	--	1967-	USGS-DWR	1-28-70	23.3	21,600	3 -9-78	8.35	16000
FEATHER RIVER NEAR GRIDLEY (BEFORE OROVILLE DAM)	3676	1929-67	USGS-DWR	12-23-55	102.2(T)	- -			
FEATHER RIVER NEAR GRIDLEY (AFTER OROVILLE DAM)	3676	1967-	USGS-DWR	1-27-70	92.8(T)	72,900	3 -6-78	81.25	17400
SOUTH HONCUT CREEK NEAR MANGOR	31	1950-	USGS	12-26-64	19.3	17,600	1-16-78	8.96	3300

PEAK FLOWS AND STAGES (CONTINUED)
METRIC UNITS

STREAM AND STATION	DRAINAGE AREA IN SQ KM	PERIOD OF RECORD	SOURCE OF RECORD	PREVIOUS MAXIMUM OF RECORD			1977-1978 WATER YEAR		
				DATE	STAGE IN METRES	DISCHARGE IN M /S	DATE	STAGE IN METRES	DISCHARGE IN M /S
CENTRAL VALLEY AREA (CONTINUED)									
SACRAMENTO RIVER BASIN (CONTINUED)									
FEATHER RIVER AT YUBA CITY	10292	1943-	USGS-DWR	12-23-64 12-24-55	23.3 25.1	4,870 - -	3 -7-78	15.21	0.0
NORTH YUBA RIVER BELOW GOODYEARS BAR	647	1930-	USGS	2- 1-63	7.3(A)	1,130	1-16-78	2.74	129
NORTH YUBA RIVER BELOW NEW MULLARDS BAR DAM NEAR SAN JUAN	1269	1940-	USGS	1-22-70 12-22-64	10.8 12.3(C)	1,590 2,590(M)	12-15-77	1.82	0.7
SOUTH YUBA RIVER NEAR CISCO	134	1942-	USGS	1-31-63	6.3(A)	521	5-14-78	2.23	58
SOUTH YUBA RIVER AT JONES BAR NEAR GRASS VALLEY	797	1940-48 1959-	USGS	12-22-64	7.6(A)	1,520	1 -5-78	3.87	233
YUBA RIVER BELOW ENGLEBRIGHT DAM	2869	1941-	USGS	12-22-64	171.9(C)	4,840(R)	1 -5-78	4.78	458
DEER CREEK NEAR SMARTVILLE	220	1935-	USGS	10-13-62	4.2	328	1 -5-78	2.62	105
YUBA RIVER NEAR MARYSVILLE	3047	1940-	USGS	12-22-64	27.5	5,100	1-16-78	21.28	529
BEAR RIVER NEAR WHEATLAND	756	1928-	USGS	12-22-55 11-21-50	5.9(C) 6.3(C)	934 - -	1-17-78	4.00	255
FEATHER RIVER AT NICOLAUS	15333	1943-	USGS-DWR	12-23-55	15.7	10,100	1 -6-78	10.18	741
FREMONT WEIR (WEST END) SPILL TO YOLO BYPASS	- -	1934-	DWR	12-23-55	12.1	8,330(R)	1-18-78	11.10	2300
SACRAMENTO RIVER AT VERONA	55055	1929-	USGS-DWR	3- 1-40	12.6	2,240	1-17-78	10.83	1930
SACRAMENTO WEIR SPILL TO YOLO BYPASS NEAR SACRAMENTO	- -	1926-	USGS-DWR	3-26-28 12-23-55	10.0 10.1	3,340(BE) - -			NO FLOW
NORTH FORK AMERICAN RIVER AT NORTH FORK DAM	885	1941-	USGS	12-23-64	3.6	1,850	1 -5-78	1.50	272
RUBICON RIVER NEAR FORESTHILL	815	1958-	USGS	12-23-64	16.9(AI)	- -	1-17-78	3.20	85
MIDDLE FORK AMERICAN RIVER NEAR FORESTHILL	1357	1958-	USGS	12-23-64	21.0(AI)	8,780(I)	1-16-78	3.53	244
MIDDLE FORK AMERICAN RIVER NEAR AUBURN	1590	1911-	USGS	12-23-64	18.4(AI)	7,160(I)	3 -4-78	4.08	237
SOUTH FORK AMERICAN RIVER NEAR CAMINO	1276	1922-	USGS	12-23-55	9.9(A)	1,410	6-15-78	1.91	2.4
SOUTH FORK AMERICAN RIVER NEAR LOTUS	1743	1951-	USGS	12-23-55	6.5	2,030	1-17-78	3.02	230
AMERICAN RIVER AT FAIR OAKS (BEFORE FOLSOM DAM)		1904-55	USGS	11-21-50	9.7(C)	2,030			
AMERICAN RIVER AT FAIR OAKS (AFTER FOLSOM DAM)	4889	1955-	USGS	12-23-64	6.6	3,260	5 -5-78	3.02	245
SACRAMENTO RIVER AT SACRAMENTO	60942	1879-	USGS-DWR NOAA	11-21-50	9.2(C)	2,940	3 -9-78	0.00	2250
SACRAMENTO RIVER AT WALNUT GROVE	- -	1929-	DWR	12-25-64	3.7	- -	3 -9-78	3.01	0.0
ADUME CREEK NEAR KELSEYVILLE	15	1954-	USGS	12-22-64	2.8	42	1-14-78	2.34	26
KELSEY CREEK NEAR KELSEYVILLE	98	1946-	USGS	12-21-55	3.9	249	1-16-78	3.44	136
CACHE CREEK NEAR LOWER LAKE	1367	1944-	USGS	2-24-58	2.9	226	4 -6-78	2.33	125

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CENTRAL VALLEY AREA (CONTINUED)									
SACRAMENTO RIVER BASIN (CONTINUED)									
FEATHER RIVER AT YUBA CITY	3974	1943-	USGS-DWR	12-23-64 12-24-55	76.4 82.4	172,000 - -	3 -7-78	49.89	
NORTH YUBA RIVER BELOW GOODYEARS BAR	250	1930-	USGS	2- 1-63	23.8(A)	40,000	1-16-78	9.00	4550
NORTH YUBA RIVER BELOW NEW BULLARDS BAR DAM NEAR SAN JUAN	490	1940-	USGS	1-22-70 12-22-64	35.3 40.5(C)	56,200 91,600(M)	12-15-77	5.97	030
SOUTH YUBA RIVER NEAR CISCO	52	1942-	USGS	1-31-63	20.6(A)	18,400	5-14-78	7.33	2100
SOUTH YUBA RIVER AT JONES BAR NEAR GRASS VALLEY	30R	1940-48 1959-	USGS	12-22-64	25.0(A)	53,600	1 -5-78	12.70	8250
YUBA RIVER BELOW ENGLEBRIGHT DAM	110R	1941-	USGS	12-22-64	564.1(C)	171,000(K)	1 -5-78	15.67	16200
DEER CREEK NEAR SMARTVILLE	85	1935-	USGS	10-13-62	13.8	11,600	1 -5-78	8.58	3750
YUBA RIVER NEAR MARYSVILLE	1339	1940-	USGS	12-22-64	90.2	180,000	1-16-78	69.83	18700
BEAR RIVER NEAR WHEATLAND	292	1928-	USGS	12-22-55 11-21-50	19.3(C) 20.8(C)	33,000 - -	1-17-78	13.11	9000
FEATHER RIVER AT NICOLAUS	5920	1943-	USGS-DWR	12-23-55	51.6	357,000	1 -6-78	33.40	26200
FREMONT WEIR (WEST END) SPILL TO YOLO BYPASS	--	1938-	DWR	12-23-55	39.7	294,000(R)	1-18-78	36.43	81400
SACRAMENTO RIVER AT VERONA	21257	1929-	USGS-DWR	3- 1-40	41.2	79,200	1-17-78	35.52	68300
SACRAMENTO WEIR SPILL TO YOLO BYPASS NEAR SACRAMENTO	--	1926-	USGS-DWR	3-26-28 12-23-55	32.8 33.0	118,000(RE - -			NO FLOW
NORTH FORK AMERICAN RIVER AT NORTH FORK DAM	342	1941-	USGS	12-23-64	11.9	65,400	1 -5-78	4.93	9650
RUBICON RIVER NEAR FORESTHILL	315	1958-	USGS	12-23-64	55.4(AI)	- -	1-17-78	10.50	3000
MIDDLE FORK AMERICAN RIVER NEAR FORESTHILL	524	1958-	USGS	12-23-64	69.0(AI)	310,000(I)	1-16-78	11.59	8650
MIDDLE FORK AMERICAN RIVER NEAR AUBURN	614	1911-	USGS	12-23-64	60.4(AI)	253,000(I)	3 -4-78	13.38	8400
SOUTH FORK AMERICAN RIVER NEAR CAMINO	493	1922-	USGS	12-23-55	32.6(A)	49,800	6-15-78	6.26	080
SOUTH FORK AMERICAN RIVER NEAR LOTUS	673	1951-	USGS	12-23-55	21.4	71,800	1-17-78	9.91	8150
AMERICAN RIVER AT FAIR OAKS (BEFORE FOLSOM DAM)	1888	1904-55	USGS	11-21-50	31.9(C)	180,000			
AMERICAN RIVER AT FAIR OAKS (AFTER FOLSOM DAM)	1888	1955-	USGS	12-23-64	21.6	115,000	5 -5-78	9.92	8650
SACRAMENTO RIVER AT SACRAMENTO	23530	1879-	USGS-DWR NOAA	11-21-50	30.1(C)	104,000	3 -9-78	0.00	79300
SACRAMENTO RIVER AT WALNUT GROVE	--	1929-	DWR	12-25-64	12.2	- -	3 -9-78	9.89	
ADOBE CREEK NEAR KELSEYVILLE	6	1954-	USGS	12-22-64	9.1	1,500	1-14-78	7.69	950
KELSEY CREEK NEAR KELSEYVILLE	37	1941-	USGS	12-21-55	12.8	8,800	1-16-78	11.29	4800
CACHE CREEK NEAR LOWER LAKE	528	1944-	USGS	2-24-58	9.4	8,000	4 -6-78	7.63	4400

PEAK FLOWS AND STAGES (CONTINUED)
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CENTRAL VALLEY AREA (CONTINUED)									
SACRAMENTO RIVER BASIN (CONTINUED)									
NORTH FORK CACHE CREEK NEAR LOWER LAKE	510	1930-	USGS	12-11-37	4.3(A)	574	1-16-78	2.39	99
CACHE CREEK AT RUMSEY	2473	1960-	USGS-DWR	1- 5-65	6.5(AC)	1,670	1-16-78	6.21	424
CACHE CREEK AT YOLO	2949	1903-	USGS	2-25-58 3-10-04	26.0 26.9(P)	1,170 - -	1-16-78	22.17	532
YOLO BYPASS NEAR ARBUCKLE	- -	1939-	USGS-DWR	2- 8-42	9.8	7,700	1-18-78	8.43	2420
PUTAH CREEK NEAR WINTERS	1486	1930-	USGS-DWR	2-27-40	9.3	2,290	1-14-78	2.85	31
YOLO BYPASS NEAR LISBON	- -	1914-	DWR	12-25-64	7.5	9,910(E)	1-19-78	5.77	0.0
SACRAMENTO RIVER AT MID VISTA	- -	1906-	DWR	12-26-55	3.1	- -(D)	6-30-78	2.40	0.0
SAN JOAQUIN RIVER BASIN									
WILLOW CREEK AT MOUTH NEAR AUBERRY	337	1952-	USGS	12-23-55	8.7(A)	444	2 -9-78	4.58	124
SAN JOAQUIN RIVER BELOW KERCKHOFF POWERHOUSE NEAR PRATHER	5835	1942-	USGS	12-23-55	15.5(A)	2,610	6-10-78	7.73	438
SAN JOAQUIN RIVER NEAR FRIANT	4340	1907-	USGS	12-11-37 6- 6-69	7.3(CM) 3.6	2,190(M) 351	4-26-78	3.00	216
SAN JOAQUIN RIVER NEAR MENDOTA	11163	1939-	USBR-DWR	6- 1-52 6-20-41	- - 4.2(C)	250 332(M)	5 -6-78	4.22	143
FRESNO RIVER NEAR ROLLES	344	1911-13 1915-	USGS	12-23-55	3.5	376	1-16-78	2.19	108
FRESNO RIVER NEAR MADERA	668	1941-	USGS	12-23-55	3.8	495	2-14-78	2.52	80
CHOWCHILLA RIVER BELOW BUCHANAN DAM NEAR RAYMOND	657	1972-	USGS	2-11-73	3.0	314	4-25-78	2.65	91
EASTSIDE BYPASS NEAR EL NIDO	- -	1948-	DWR	2-25-69	5.4	614	4-26-78	5.08	448
MERCED RIVER AT POHONO BRIDGE NEAR YOSEMITE	831	1916-	USGS	12-23-55	6.6(A)	662	6 -9-78	3.11	182
MERCED RIVER NEAR STEVINSON	3297	1940-	USGS	12- 5-50	22.5	0,385	STATION DISCONTINUED		
SAN JOAQUIN RIVER NEAR NEWMAN	24857	1912-	USGS-DWR	2-26-69	20.1(A)	982(L)	4-10-78	19.66	437
ORESTIMBA CREEK NEAR NEWMAN	347	1932-	USGS	4- 2-58	2.0(C)	288	1-17-78	2.45	123
SOUTH FORK TUOLUMNE RIVER NEAR OAKLAND RECREATION CAMP	225	1923-	USGS	12-23-55	3.3(A)	336	2 -9-78	2.42	65
MIDDLE TUOLUMNE RIVER AT OAKLAND RECREATION CAMP	191	1916-	USGS	12-23-55	3.6(A)	139	2 -9-78	1.86	28
TUOLUMNE RIVER AT MODESTO	4879	1940-	USGS-DWR	12- 9-50	21.1	1,610	5 -7-78	14.82	166

STREAM AND STATION	DRAINAGE AREA IN SQ MILES	PERIOD OF RECORD	SOURCE OF RECORD	PREVIOUS MAXIMUM OF RECORD DATE	PREVIOUS MAXIMUM OF RECORD STAGE IN FEET	PREVIOUS MAXIMUM OF RECORD DISCHARGE IN CFS	1977-1978 WATER YEAR DATE	1977-1978 WATER YEAR STAGE IN FEET	1977-1978 WATER YEAR DISCHARGE IN CFS
CENTRAL VALLEY AREA (CONTINUED)									
SACRAMENTO RIVER BASIN (CONTINUED)									
NORTH FORK CACHE CREEK NEAR LOWER LAKE	197	1930-	USGS	12-11-37	14.0(A)	20,300	1-16-78	7.85	3500
CACHE CREEK AT RUMSEY	955	1960-	USGS-DWR	1- 5-65	21.4(AC)	59,000	1-16-78	20.37	15000
CACHE CREEK AT YOLO	1139	1903-	USGS	2-25-58 3-10-04	85.4 88.4(P)	41,400 - -	1-16-78	72.73	18800
YOLO BYPASS NEAR WOODLAND	--	1939-	USGS-DWR	2- 8-42	32.0	272,000	1-18-78	27.67	85600
PUTAH CREEK NEAR WINTERS	574	1930-	USGS-DWR	2-27-40	30.5	81,000	1-14-78	9.34	1150
YOLO BYPASS NEAR LISHON	--	1914-	DWR	12-25-64	24.7	350,000(E)	1-19-78	18.94	
SACRAMENTO RIVER AT RIO VISTA	--	1906-	DWR	12-26-55	10.2	- -(D)	6-30-78	7.86	
SAN JOAQUIN RIVER BASIN									
WILLOW CREEK AT MOUTH NEAR AUBERRY	130	1952-	USGS	12-23-55	28.5(A)	15,700	2 -9-78	14.92	4400
SAN JOAQUIN RIVER BELOW KERCHOFF POWERHOUSE NEAR PRATHER	1081	1902-	USGS-	12-23-55	51.0(A)	92,200	6-10-78	25.35	15500
SAN JOAQUIN RIVER BELOW FRIANT	1676	1907-	USGS	12-11-37 6- 6-69	23.8(CM) 11.7	77,200(M) 12,400	4-26-78	9.83	7650
SAN JOAQUIN RIVER NEAR MENDOTA	4310	1939-	USBR-DWR	6- 1-52 6-20-41	- - 13.8(C)	8,840 11,740(M)	5 -6-78	13.86	5050
FRESNO RIVER NEAR KNOWLES	133	1911-13 1915-	USGS	12-23-55	11.5	13,300	1-16-78	7.18	3800
FRESNO RIVER NEAR DAULTON	258	1941-	USGS	12-23-55	12.6	17,500	2-10-78	8.27	2850
CHOWCHILLA RIVER BELOW RAYNOR CREEK NEAR RAYMOND	254	1972-	USGS	2-11-73	9.9	11,100	4-25-78	8.69	3250
EASTSIDE BYPASS NEAR EL NIDO	--	1964-	DWR	2-25-69	17.6	21,700	4-26-78	16.68	15800
MERCED RIVER AT POHONO BRIDGE NEAR YOSEMITE	321	1916-	USGS	12-23-55	21.5(A)	23,400	6 -9-78	10.19	6450
MERCED RIVER NEAR STEVINSON	1273	1940-	USGS	12- 5-50	73.8	13,600	STATION DISCONTINUED		
SAN JOAQUIN RIVER NEAR NEWMAN	9520	1912-	USGS-DWR	2-26-69	65.9(A)	34,700(L)	4-10-78	64.49	15400
ORESTIMBA CREEK NEAR NEWMAN	134	1932-	USGS	4- 2-58	6.6(C)	10,200	1-17-78	8.03	4350
SOUTH FORK TUOLUMNE RIVER NEAR OAKLAND RECREATION CAMP	87	1923-	USGS	12-23-55	10.9(A)	11,900	2 -9-78	7.98	2300
MIDDLE TUOLUMNE RIVER AT OAKLAND RECREATION CAMP	74	1916-	USGS	12-23-55	11.8(A)	4,920	2 -9-78	6.09	1000
TUOLUMNE RIVER AT MODESTO	1884	1900-	USGS-DWR	12- 9-50	69.2	57,000	5 -7-78	48.63	5900

PEAK FLOWS AND STAGES (CONTINUED)
METRIC UNITS

STREAM AND STATION	DRAINAGE AREA IN SQ KM	PERIOD OF RECORD	SOURCE OF RECORD	PREVIOUS MAXIMUM OF RECORD DATE	PREVIOUS MAXIMUM OF RECORD STAGE IN METRES	PREVIOUS MAXIMUM OF RECORD DISCHARGE IN M /S	1977-1978 WATER YEAR DATE	1977-1978 WATER YEAR STAGE IN METRES	1977-1978 WATER YEAR DISCHARGE IN M /S
CENTRAL VALLEY AREA (CONTINUED)									
SAN JOAQUIN RIVER BASIN (CONTINUED)									
SOUTH FORK STANISLAUS RIVER NEAR LONG BARN	173	1937-	USGS	11-21-50	2.8	138	7 -3-78	1.76	36
STANISLAUS RIVER AT ORANGE BLOSSOM BRIDGE	- -	1928-39 1940-	DWR	12-23-55	9.7	1,760	5-23-78	3.47	152
STANISLAUS RIVER AT RIPON	2784	1940-	USGS-DWR	12-24-55 2-12-38	19.3 19.6(A)	1,770 - -	5 -8-78	15.51	113
SAN JOAQUIN RIVER NEAR VERNALIS	3506A	1922-	USGS-DWR	12- 9-50 1-27-69	10.0(C) 10.5	2,240 1,490	5 -4-78	8.57	747
DUCK CREEK NEAR STOCKTON	- -	1950-	DWR	1-16-73	2.0	22	3 -4-78	1.81	17
SOUTH FORK CALAVERAS RIVER NEAR SAN ANDREAS	305	1950-	USGS	12-23-55	3.1	498	1-14-78	2.51	123
MORMON SLOUGH AT BELLOTA	- -	1948-	DWR	4- 2-58	6.3	436(E)	2 -7-78	2.74	99
STOCKTON DIVERTING CANAL AT STOCKTON	- -	1944-	DWR	4- 4-58	5.2(E)	322(E)	1-15-78	3.33	107
CALAVERAS RIVER NEAR STOCKTON	- -	1958-	DWR	1- 6-65	3.8	21(E)	2 -8-78	1.92	6.4
BEAR CREEK NEAR LOCKEFORD	124	1930-	USGS	4- 3-58	4.6	82	1-14-78	2.69	37
COLE CREEK NEAR SALT SPRINGS DAM	52	1927-42 1943-	USGS	12-23-64	3.1	173	5-14-78	1.18	35
SOUTH FORK MOKELUMNE RIVER NEAR WEST POINT	194	1933-	USGS	12-23-55	4.5(AC)	195	1-14-78	1.93	34
MOKELUMNE RIVER NEAR MOKELUMNE HILL	140A	1901-	USGS	12- 3-50	5.6	954	6 -8-78	3.95	170
MOKELUMNE RIVER AT WOODBRIDGE	1711	1924-	USGS	11-22-50	9.0	764	5 -3-78	3.69	38
MOKELUMNE RIVER NR THORNTON(BENSON FERRY)	5296	1911-	DWR-NOAA	12-24-55	5.5(C)	- -(D)	1-16-78	3.06	0.0
DRY CREEK NEAR GALT	852	1926-33 1944-	USGS-DWR	4- 3-58	4.7	679	3 -6-78	4.21	142
NORTH FORK COSUMNES RIVER NEAR EL DORADO	530	1911-41 1948-	USGS	12-23-55	4.5	447	1-17-78	2.44	81
SOUTH FORK COSUMNES RIVER NEAR RIVER PINES	165	1957-	USGS	2- 1-63	3.3	156	1-15-78	1.70	53
COSUMNES RIVER AT MICHIGAN BAR	1388	1907-	USGS-DWR	12-23-55 3- -07	4.5 5.0(A)	1,190 - -	3 -4-78	2.40	233
COSUMNES RIVER AT MCCONNELL	1875	1941-	USGS	12-23-55	10.1	1,530	1-15-78	13.43	291
TULARE LAKE BASIN									
TULE RIVER NEAR SPRINGVILLE	639	1957-	USGS	12- 6-66	6.0(AC)	1,400	2 -9-78	2.90	222
TULE RIVER BELOW SUCCESS DAM	1017	1953-	USGS	12-23-55 11-19-50	6.6(C) 7.9(AC)	764 906(M)	3-16-78	2.03	22
KAWEAH RIVER AT THREE RIVERS	1082	1958-	USGS	12- 5-66 12- 5-66	5.1 5.8(A)	2,070 - -	3 -4-78	2.86	267
KINGS RIVER BELOW NORTH FORK	3475	1951-	USGS	12-23-55	7.0	2,410	9 -5-78	3.73	615
BUENA VISTA LAKE BASIN									
KERN RIVER AT KERNVILLE	2612	1905-12 1953-	USGS	12- 6-66	5.9(A)	2,100	6 -9-78	3.10	220

STREAM AND STATION	DRAINAGE AREA IN SQ MILES	PERIOD OF RECORD	SOURCE OF RECORD	PREVIOUS MAXIMUM OF RECORD DATE	PREVIOUS MAXIMUM OF RECORD STAGE IN FEET	PREVIOUS MAXIMUM OF RECORD DISCHARGE IN CFS	1977-1978 WATER YEAR DATE	1977-1978 WATER YEAR STAGE IN FEET	1977-1978 WATER YEAR DISCHARGE IN CFS
CENTRAL VALLEY AREA (CONTINUED)									
SAN JOAQUIN RIVER BASIN (CONTINUED)									
SOUTH FORK STANISLAUS RIVER NEAR LONG BARN	67	1937-	USGS	11-21-50	9.3	4,900	7 -3-78	5.76	1300
STANISLAUS RIVER AT ORANGE BLOSSOM BRIDGE	--	1928-34 1940-	DWR	12-23-55	31.8	62,000	5-23-78	11.39	5400
STANISLAUS RIVER AT RIPON	1075	1940-	USGS-DWR	12-24-55 2-12-38	63.3 64.4(A)	62,500<- ->	5 -8-78	50.88	4000
SAN JOAQUIN RIVER NEAR VERNALIS	13540	1922-	USGS-DWR	12- 9-50 1-27-69	32.8(C) 34.6	79,000 52,600	5 -4-78	28.12	26400
DUCK CREEK NEAR STOCKTON	--	1950-	DWR	1-16-73	6.5	780	3 -4-78	5.94	600
SOUTH FORK CALAVERAS RIVER NEAR SAN ANDREAS	118	1950-	USGS	12-23-55	10.3	17,600	1-14-78	8.22	4350
MORMON SLOUGH AT BELLOTA	--	1948-	DWR	4- 2-58	20.7	15,400(E)	2 -7-78	8.98	3500
STOCKTON DIVERTING CANAL AT STOCKTON	--	1944-	DWR	4- 4-58	17.1(E)	11,400(E)	1-15-78	10.94	3800
CALAVERAS RIVER NEAR STOCKTON	--	1958-	DWR	1- 6-65	12.6	760(E)	2 -8-78	6.29	250
MEAN CREEK NEAR LOCKEFORD	48	1930-	USGS	4- 3-58	15.1	2,930	1-14-78	8.81	1300
COLE CREEK NEAR SALT SPRINGS DAM	20	1927-42 1943-	USGS	12-23-64	10.2	6,140	5-14-78	3.87	1250
SOUTH FORK MOKELUMNE RIVER NEAR WEST POINT	75	1933-	USGS	12-23-55	14.8(AC)	6,920	1-14-78	6.34	1200
MOKELUMNE RIVER NEAR MOKELUMNE HILL	544	1901-	USGS	12- 3-50	18.5	33,700	6 -8-78	12.97	6000
MOKELUMNE RIVER AT WOODBRIDGE	661	1928-	USGS	11-22-50	29.6	27,000	5 -3-78	12.11	1350
MOKELUMNE RIVER NR THORNTON(BENSON FERRY)	2045	1911-	DWR-NOAA	12-24-55	18.0(C)	<- -> (O)	1-16-78	10.05	
DRY CREEK NEAR GALT	329	1926-33 1944-	USGS-DWR	4- 3-58	15.3	24,000	3 -6-78	13.81	5050
NORTH FORK COSUMNES RIVER NEAR EL DORADO	205	1911-41 1948-	USGS	12-23-55	14.8	15,800	1-17-78	7.99	2900
SOUTH FORK COSUMNES RIVER NEAR RIVER PINES	68	1957-	USGS	2- 1-63	10.9	5,540	1-15-78	5.57	1900
COSUMNES RIVER AT MICHIGAN BAR	536	1907-	USGS-DWR	12-23-55 3- -07	14.6 16.3(A)	42,000<- ->	3 -4-78	7.88	8250
COSUMNES RIVER AT MCCONNELL	724	1941-	USGS	12-23-55	46.3	54,000	1-15-78	44.07	10300
TULARE LAKE BASIN									
TULE RIVER NEAR SPRINGVILLE	247	1957-	USGS	12- 6-66	19.7(AC)	49,600	2 -9-78	9.52	7850
TULE RIVER BELOW SUCCESS DAM	393	1953-	USGS	12-23-55 11-19-50	21.7(C) 26.0(AC)	27,000 32,000(M)	3-16-78	6.67	800
KAWEAH RIVER AT THREE RIVERS	418	1958-	USGS	12- 5-66 12- 5-66	16.7 19.0(A)	73,000<- ->	3 -4-78	9.37	9450
KINGS RIVER BELOW NORTH FORK	1502	1951-	USGS	12-23-55	23.1	85,200	9 -5-78	12.24	21700
BUENA VISTA LAKE BASIN									
KERN RIVER AT BAKERSFIELD	1009	1905-12 1953-	USGS	12- 6-66	19.3(A)	74,000	6 -9-78	10.18	7800

PEAK FLOWS AND STAGES (CONTINUED)
METRIC UNITS

STREAM AND STATION	DRAINAGE AREA IN SQ KM	PERIOD OF RECORD	SOURCE OF RECORD	PREVIOUS MAXIMUM OF RECORD			1977-1978 WATER YEAR		
				DATE	STAGE IN METRES	DISCHARGE IN M /S	DATE	STAGE IN METRES	DISCHARGE IN M /S
NORTHERN LAHONTAN AREA									
HONEY LAKE BASIN									
WILLOW CREEK NEAR SUSANVILLE	233	1950-	USGS	2- 1-63	1,7	23	1-16-78	1,35	9,3
SUSAN RIVER AT SUSANVILLE	476	1917-21 1950-	USGS	12-22-64	2,2	144	1-14-78	1,30	20
PYRAMID AND WINNEMUCCA LAKES BASIN									
LITTLE TRUCKEE RIVER ABOVE BOCA RESERVOIR NEAR BOCA	378	1903-10 1939-	USGS	2- 1-63	2,7	376	5-16-78	0,98	49
TRUCKEE RIVER AT FARAD	2413	1899-	USGS	11-21-50	4,4(A)	495	5-21-78	1,89	98
CARSON RIVER BASIN									
EAST FORK CARSON RIVER BELOW MARKLEEVILLE CREEK	714	1960-	USGS	1-31-63	3,1	427	5-15-78	1,30	66
WEST FORK CARSON RIVER AT WOODFORDS	170	1900-07 1938-	USGS	2- 1-63	2,7	138	5-14-78	1,14	25
WALKER LAKE BASIN									
WEST WALKER RIVER NEAR LITTLE WALKER RIVER NEAR COLEVILLE	466	1938-	USGS	11-20-50	2,5	176	6-14-78	1,50	56
EAST WALKER RIVER NEAR BRIDGEPORT	929	1911-14 1921-	USGS	6-19-63	1,4	39	5 -3-78	0,84	14
SOUTHERN LAHONTAN AREA									
MOJAVE RIVER BASIN									
MOJAVE RIVER AT LOWER NARROWS NEAR VICTORVILLE	1331	1899-06 1930-	USGS	3- 2-38	7,2	2,000	2-10-78	2,58	396
MOJAVE RIVER AT BARSTOW	3341	1930-	USGS	3- 3-38	2,6	1,820	2-10-78	1,45	291
MOJAVE RIVER AT AFTON	9491	1929-32 1942-	USGS	1-26-69	3,2	509	3 -5-78	0,00	396(E)

PEAK FLOWS AND STAGES (CONTINUED)
ENGLISH UNITS

STREAM AND STATION	DRAINAGE AREA IN SQ MILES	PERIOD OF RECORD	SOURCE OF RECORD	PREVIOUS MAXIMUM OF RECORD			1977-1978 WATER YEAR		
				DATE	STAGE IN FEET	DISCHARGE IN CFS	DATE	STAGE IN FEET	DISCHARGE IN CFS
NORTHERN LAHONTAN AREA									
HONEY LAKE BASIN									
WILLOW CREEK NEAR SUSANVILLE	90	1950-	USGS	2- 1-63	5.6	820	1-16-78	4.43	350
SUSAN RIVER AT SUSANVILLE	184	1917-21 1950-	USGS	12-22-64	7.3	5,100	1-14-78	4.41	750
PYRAMID AND WINNEMUCCA LAKES BASIN									
LITTLE TRUCKEE RIVER ABOVE HOCA RESERVOIR NEAR HOCA	146	1903-10 1939-	USGS	2- 1-63	9.0	13,300	5-16-78	3.21	1750
TRUCKEE RIVER AT FARAD	932	1899-	USGS	11-21-50	14.5(A)	17,500	5-21-78	6.19	3350
CARSON RIVER BASIN									
EAST FORK CARSON RIVER BELOW MARKLEEVILLE CREEK	276	1960-	USGS	1-31-63	10.2	15,100	5-15-78	4.27	2350
WEST FORK CARSON RIVER AT WOODFORDS	66	1900-07 1938-	USGS	2- 1-63	9.0	4,890	5-14-78	3.75	900
WALKER LAKE BASIN									
WEST WALKER RIVER BELOW LITTLE WALKER RIVER NEAR COLEVILLE	180	1938-	USGS	11-20-50	8.1	6,220	6-14-78	4.92	2000
EAST WALKER RIVER NEAR BRIDGEPORT	359	1911-14 1921-	USGS	6-19-63	4.6	1,390	5 -3-78	2.76	500
SOUTHERN LAHONTAN AREA									
MOJAVE RIVER BASIN									
MOJAVE RIVER AT LOWER NARROWS NEAR VICTORVILLE	514	1899-06 1930-	USGS	3- 2-38	23.7	70,600	2-10-78	8.48	14000
MOJAVE RIVER AT HARSTOW	1290	1930-	USGS	3- 3-38	8.6	64,300	2-10-78	4.75	10300
MOJAVE RIVER AT AFTON	2120	1929-32 1952-	USGS	1-26-69	10.4	18,000	3 -5-78	0.00	14000(E)

LEGEND

USGS	United States Geological Survey
USBR	United States Bureau of Reclamation
NOAA	National Weather Service (National Oceanic and Atmospheric Administration)
USCE	United States Corps of Engineers
DWR	Department of Water Resources
PG&E	Pacific Gas and Electric Company
A	From flood marks
B	Discharge over weir or spillway
C	Site or datum then is use
D	Discharge not determined, affected by backwater or tide
E	Estimated
F	From DWR telemetering log
G	Preliminary
H	Includes flow through power plant
I	Due to failure of partially completed dam
J	Gage height revised
K	Flow through power plant not included
L	Discharge at latitude of gaging station site
M	Prior to construction of upstream dam
N	Includes flow through fish hatchery but not upstream diversion to Thermalito Afterbay
P	Observed
Q	Estimated peak inflow to partially completed Oroville Reservoir
R	Regulated stage and flow
S	Revised to current datum
T	Datum of gage is 0=0 USED
U	Crest stage partial recorder
N/A	Not available at report time
*	Peak of record established current year

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